Gleanings in BEE CULTURE

January 1959

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Gleanings in Bee Culture

January, 1959 Vol. 87, No. 1

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Huber H. Root, Associate Editor — Walter Barth, Field Editor
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XUM

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of
friendship

FOR YOUR FAVORS
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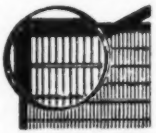
FRIENDLY GOOD WILL
PLEASE ACCEPT
OUR SINCERE THANKS
AND
BEST WISHES
FOR
THE NEW YEAR

AUGUST LOTZ COMPANY

Manufacturers & Jobbers
of Bee Supplies
Boyd, Wisc.

Chrysler's Electric Welded All-Steel Queen Excluder



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We Render Cappings, Old Combs, and Slum-gum.
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° Market for your Honey ° Market for your Beeswax
Drop us a card so that you will be sure and
get one of our new 1959 Bee Supply Catalogs.

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1909 East 4th Street Sioux City, Iowa

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"THE HIVES THAT LAST FOR LESS"
Savings up to 40 percent
Write for **FREE** 1959 Bee Supply Catalog
MYERS CRAFT MFG. CO. Burgaw, No. Car.

To our customers . . . our old friends of years standing . . . and to our new customers . . . who in the course of coming years we hope will become old customers and old friends . . We Wish You a Bright, Happy, and Prosperous NEW YEAR.

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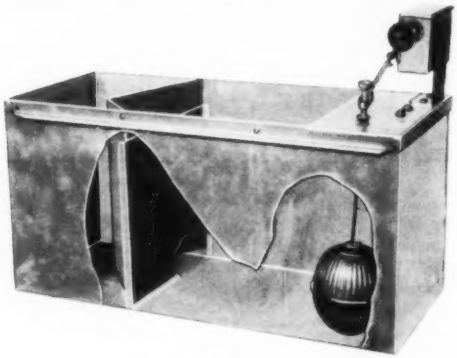
Marshfield, Wisconsin



Automatic Sump

Our big new sump holds about 8 gallons on the entrance side and has a solid baffle so that the debris can be held there and skimmed off. The pump side holds about 12 gallons and they are stocked with or without a water jacket, in stainless and galvanized steel. Write for free catalog.

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Manufacturers and Exporters of Bee Supplies
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HAPPY NEW YEAR! We wish to assure you our best for 1959. Please book early at the following prices:

	Queens	2-lb. w/q	3-lb. w/q
1 to 24	$1.40	$4.25	$5.35
25 to 100	1.15	3.75	4.75

CALVERT APIARIES **Calvert, Ala.**

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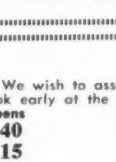
6-MONTH AUTOMATIC RENEWAL



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Monthly HONEY Report

WALTER BARTH
Field Editor
San Antonio, Texas

WHY DOESN'T this advertisement read, "Thank goodness I prefer . . . HONEY"? Instead, our industry has not only been beaten to the punch but a century old association of bears and honey is up for a change. Tired of being "stung", the cute little bear turns to **syrup.**

What effect this advertisement had on the millions of people who possibly saw it in the November 11, 1958, issue of LOOK magazine or one of several similar ads that appeared simultaneously in SATURDAY EVENING POST, LIFE, and other magazines is not possible to calculate. In full color and with a cute little bear as a focal point, there is little doubt that it was well read. What do you, as a beekeeper or honey packer, think of this advertisement? To me it points out our desperate need for honey advertising. Have you made your contribution to the American Honey Institute? If not, how about sending a dollar today? And just as important, buy and distribute Institute literature. Have you asked your honey packer if he is cooperating with the "Check Off Plan" of the Honey Council of America and to make the one cent a 60-pound can deduction for you on your honey sold him?

During the past months we have been giving the national average retail honey prices in an attempt to aid beekeepers to determine their selling prices. In spite of these reports in Gleanings and in other publications, and the relatively stable prices maintained by the large packers, too much honey is being sold at prices that are too low. Such prices indicate the need for better record keeping to determine true costs.

If you need help in determining your honey production costs, then write for the free 8¼ x 11 record for beekeepers prepared by the Agricultural Economics Department at Purdue University. There is space for labor records, cash expenses and receipts, inventory, management notes, summaries, and factor sheet. This record book is also ideal for a cost check and for tax purposes. Here is a valuable asset for any beekeeper. Interested? Then write to Dr. B. Elwood Montgomery, Department of Entomology, Purdue University, Lafayette, Indiana. A postcard request should do the trick.

Dr. Roger Morse, GLEANINGS' Science Editor and Beekeeping Specialist at Cornell University, passes on the little story about a beekeeper who **wholesales** his honey at $1.02 for five pound pails. A big chain store buyer called and asked him to come up. The beekeeper did. The buyer wanted a carload to retail at 99 cents. The beekeeper refused and left with these closing remarks from the buyer, "Okay, but you know I will shop around and I will get the honey at my price". This true story is too often repeated, and

(Continued on page 26)

1959 PRICES

Choice of ITALIANS or CAUCASIANS

Quantity	Queens only	2 lb. Package with queen	3 lb. Package with queen	4 lb. Package with queen	5 lb. Package with queen
1-9	$ 1.70	$ 4.50	$ 5.50	$ 6.50	$ 7.50
10-49	1.60	4.00	5.00	6.00	7.00
50-99	1.55	3.85	4.85	5.85	6.85
100 and over	1.50	3.75	4.75	5.75	6.75

We sell GOOD BEES specifically developed for heavy honey production, one grade only

CROSS BRED CLOVERLINES.

We have no disease and all our apiaries are government inspected. Certificate of Health and Directions for Handling come with every shipment. Live delivery and complete satisfaction guaranteed. Your choice of shipment via Express Collect, Parcel Post or your truck. If Parcel Post is desired, please add postage as indicated in the chart shown below.

PARCEL POST CHARGES

	Ship Wt.	Zone 1 & 2 Up to 150 miles	Zone 3 150 to 300 miles	Zone 4 300 to 600 miles	Zone 5 600 to 1,000 miles	Zone 6 1,000 to 1,400 miles
1 @ 2 lb. Pkg.	8 lb.	.86	.95	1.08	1.26	1.47
2 @ 2 lb. Pkg.	16 lb.	1.33	1.51	1.78	2.15	2.58
3 @ 2 lb. Pkg.	24 lb.	1.64	1.92	2.33	2.89	3.53
1 @ 3 lb. Pkg.	9 lb.	.90	1.00	1.15	1.35	1.59
2 @ 3 lb. Pkg.	18 lb.	1.41	1.61	1.92	2.34	2.82
3 @ 3 lb. Pkg.	27 lb.	1.76	2.07	2.54	3.17	3.89

A crate of three packages of any size is the largest that can be shipped by Parcel Post. The above rates include both postage and required special handling stamps. For either four pound or five pound packages add .25 per package to 3 lb. rates to cover additional postage. For distances greater than zone 6, consult your postmaster.

FOR PREFERRED DATES BOOK YOUR ORDER EARLY.

SHIPPING SEASON FROM APRIL 1ST TO MAY 15TH.

CLOVERLINE APIARIES

P. O. Box 5126, Columbia, S. C.

Mrs. Goldsmith just happened to have a jar of honey in her hand when the potographer snapped this one. Besides her observation hive, she has a gay poster, a peg board with equipment, samples of light and dark honey, a mailing cage, a Root hive, and, too high to show any but the bottom, a hand-done illustration of the dance that gives directions to field bees as to where the current nectar flow is....the sign on top of the observation hive invites, "Please look, but do not touch", a notice posted when the bees were shown at the 4-H Club's Rockland County Fair this fall. Mrs. Goldsmith, who was a 4-H Club girl for many years, assists the Rockland County Beekeepers in planning and presenting an educational exhibit at the annual two-day fair.—Photo by Olaf Studios.

She Takes Bees To School

Hobbyist beekeeper, Mrs. Laurens Goldsmith of West Haverstraw, New York, takes her bees to school, not so they may learn the three R's but so boys and girls may share in the adventure of watching these fascinating insects go about their hive duties.

MARIRUTH CAMPBELL
Valley Cottage, N. Y.

REMEMBERING vividly the excitement of her earliest beekeeping days, when she was Miss Sylvia Campbell, aged 13, Mrs. Goldsmith finds it easy to hold an audience of school children and, since most early studies of nature include facts about bees, she is much in demand in the local schools.

Just of voting age this year, Mrs. Goldsmith has been lecturing and talking bees for the past five or six years. She has been guest speaker for 4-H

Three kindergarten children come up for a close look. Near the observation hive is a magnifying glass for getting an enlarged view. On the table is the book that Mrs. Goldsmith likes to have handy for quick reference. Not only is Teale's "The Golden Throng" beautifully written, it also has exceptionally fine photographs. Of course, the speaker's background reading includes most of the popular texts in the field, but for sheer joy in reading about bees this is her favorite book.—Photo by Olaf Studios.

Clubs, Scout troops, hobby and garden clubs and has several very fine fair exhibits to her credit. The whole thing started rather casually when she took an observation hive of bees to her high school science class and was invited into the lower grades of the adjoining grammar school because some of the youngsters had seen her carrying the hive through the school yard and asked questions.

She has used various introductions to her subject matter. One year she started her talks by saying, "My grandfather always said hard work would never kill anyone, but then grandpa didn't know any honeybees". Another time, she carried equipment in a large garden basket, and asking for volunteers—one boy and one girl—she would dress them up "for a trip through a bee hive". This year, she is telling the young people, "I keep bees because I really wanted a horse". And, quite gaily recounts how she "settled" for bees because her parents, even though they had a barn with three horse stalls, could not afford to buy her a horse, not even a little one, but thought they could manage to purchase a hive of bees.

When the bees arrived, she fell in love with them and has been working with them ever since, even though she lost her bees the first three years for various reasons.

No matter what the introduction, Mrs. Goldsmith finds as long as she has a frame of live bees in an observation hive, people are interested and ask questions. So, as soon as she presents a brief outline of management, she throws the meeting open for questions —and everyone seems to have at least one.

An active member of the Rockland County, New York, Beekeepers' Association, which she joined very soon after getting her first package of bees, Mrs. Goldsmith has served for several

years as secretary-treasurer of the association and last spring was hostess to the group in her new home when the association gave a buffet dinner in honor of Dr. E. J. Dyce, head of the Department of Apiculture, New York State College of Agriculture, Cornell University. Dr. Dyce comes to one association meeting a year to keep members on their toes about newest and best methods of apiary management. At the dinner he was presented with a gift and a plaque in appreciation for his help and friendliness to the county's beekeepers.

A NEW WAY TO RAISE MONEY

H. H. ROOT
Medina, Ohio

THAT INIMITABLE Scotchman, Joseph Barr, suddenly mounted the platform at a Wisconsin state meeting, and announced that since the Association wanted to raise a fund for prizes at the next State Fair, the officers had decided to impose fines on a number of persons in attendance at the last session of a two-day meeting. After so many years I do not remember all the fines but I remember my own. I was called to the platform, and fined $5.00 for coming to the meeting with a wrinkled coat. I paid my fine; so did the others.

A Tribute to Dr. Phillips

At the close, Mr. Barr, with a sudden switch of manner presented Dr. E. F. Phillips with a little plaque signed by officers of the Association, given in appreciation of his help during the week at the Beekeepers' Short Course. It was so sincere, and so unexpected that Dr. Phillips was fairly overcome,—so far as I know, for the first and only time in his life. Trying to express his thanks, he started to tell a story about early thrills when he, as a boy, delighted in lighting pin-wheels, but he said that the pin wheels now would not spin,—and he sat down. This little incident reminded us that scientists, after all, are human,—and we loved him all the more because he could not speak.

IT'S AN IDEA

MILTON H. STRICKER
Stockton, N. J.

FOR SPRING FEEDING it is not necessary to use an empty hive body to cover the feeder can, just reverse the escape board, deep side down. This will shed rain; place the feeder can over the hole. Anchor with stone if thought necessary.

These honey servers may be filled several times a day.

Utah Cafes Really Sell Honey

Harman Cafes in Salt Lake City, Utah, use 700 60-pound cans of honey a year.

S. K. HAMPTON
Salt Lake City, Utah

UTAH HONEY producers and packers' honey sales have increased 50 per cent since the restaurants and cafes in Utah started serving honey to their customers.

I think one of the best ways to get people to eat more honey, and also interest the ones who do not eat much honey, is to have cafes and restaurants serve honey to their customers.

Here in Utah approximately 75 per cent of the restaurants and cafes serve honey with all their meals. Seventy-five to 80 thousand people a week are eating honey in Utah, at cafes, restaurants, and hotels.

Honey sales in Utah, at grocery stores and fruit markets have increased more than 50 per cent the past three to four years, since the restaurants and cafes have been serving honey to their customers.

Harman's three cafes in Salt Lake City, specialize in Kentucky Fried Chicken and hot rolls and honey. The Manager, Mr. Pete Harman, believes in advertising his Kentucky Fried Chicken and hot rolls and honey. When people drive along the highways, coming into Salt Lake City, they will see Harman's big road signs, reading, "Harman's Kentucky Fried Chicken — Hot Rolls and Honey".

The tourists coming into Utah read these Harman cafe road signs and drop in one of his three cafes for "Kentucky Fried Chicken and Hot Rolls and Honey". Harman cafes also have a very attractive menu, with salad, meat or fish orders and other varieties of food.

During the summer months Harman's three cafes will feed approximately 50,000 people a week.

The average restaurant here in Utah will use one 60-pound can of honey a month. We have several restaurants that use three to six 60-pound cans a month. Others that do not put honey on tables, or counter, serve honey only when their customers ask for it. One 60-pound can of honey will last them one year.

Harman's three cafes use 6000 chickens a week, or 12,000 pounds a week—and that is a lot of chicken.

When you walk into Harman Cafes, you will notice, on all the tables, and at the counters, server jars, filled with honey. These server jars hold one pound of honey and are never taken off the tables or counter, only when they need refilling with honey by the waitresses. They are there for the customers to use and eat as much honey as they care to eat with their meals.

Sugar is left on counters and tables, at restaurants and cafes, 24 hours a day, — why not have honey on the tables?

At Harman's cafes the waitresses will fill the honey server jars twice a day. The sugar jars are filled about once a week.

While eating in Harman's Cafes, one will notice that customers are using honey on salad, in their coffee or tea, on hot rolls, on pie, also on ice-cream. One customer was asked by a waitress, why he was putting honey on his steak. He said it was much better for him than using ketchup or steak sauce. She said, "I have seen everything now".

The waitress asked one customer if he would like dessert. He said, "No, all I want is another hot roll with some more of that delicious honey".

Harman cafes have a take-out order department, a box lunch of Kentucky Fried Chicken, Hot Rolls and, of course, in each take-out box lunch of Kentucky Fried Chicken, is a serving of honey, packed in a cellophane bag. Harman's three cafes put out approximately 500,000 box lunches a year, and here again, are a lot of people eating honey, making them HONEY-MINDED. They go to their grocery store and buy a jar or can of honey to take home.

I have been asked by several restaurant men and honey packers and producers, how it is that Harman's three cafes can use so much honey in a year —700 60-pound cans a year is a lot of honey. What I have related here seems the answer.

Most restaurants and cafe managers I have called on for the first time, to try to have them serve honey with their meals, advise me it is too hard to handle, compared with jellies and preserves. Several restaurant managers told me that they had tried serving honey, but it was delivered in a 60-pound can and they said it was hard for the waitresses to handle a 60-pound can. They got honey all over the floor, the tables, and counter, door knobs; everything in the restaurant was sticky with honey.

As we all know honey is hard to handle but nine out of ten restaurants can be sold on serving honey to their customers if shown how to dispense honey so it will not get all over. A way to overcome this stickiness in restaurants, and honey getting all over the counter and tables and floor, is to have the restaurant buy a five-gallon milk can and solder a one and a half or two inch gate valve at the bottom of the milk can. A milk can will hold a 60-pound can of honey. Waitresses fill these server jars from the milk can — no drip of honey on the floor, tables, or counter.

If honey is placed on a table in a server jar in a restaurant, or a home and along the side of it a jar of sugar—nine out ten people will eat the honey in preference to sugar with all their meals.

Buy U. S. Savings Bonds
They come in all sizes . . . .

Comb honey, brought to the Extension Office by Harry Vandenberg, is being compared to honey within the observation hive in the Extension Office fy County Extension Agent, Paul C. Leidheiser, as Pat Schenemon, Office Secretary, smiles her approval of the bee business. Specific detail of the observation hive, including the sugar syrup feeder and the exit tube are easily seen in the picture.

A HIVE OF BEES IN

What Lorain County (Ohio) is doing to make people more bee and and honey minded.

PAUL C. LEIDHEISER
Elyria, Ohio

BEEKEEPING AS a pleasurable pastime or a profitable profession has been called to the attention of many Lorain Countians this year. But, perhaps, more important is the fact that the Lorain County Extension Staff have become better informed concerning bees and their habits. How did this happen? As probably has happened in no other county, a hive of bees have, for the past five months, made their home in the front office of the local Extension Service.

This did not just happen, but was the carefully laid plot of Harry Vandenberg, president of the Ohio State Beekeepers' Association, local bee inspector, and avid apiarist. Harry designed and made a three-frame observation-type hive and installed it complete with a small swarm of bees in the county agent's office. Naturally, the secretaries were vociferous objectors, but soon learned that the bees were not a hazard and were extremely interesting creatures. The hive, when placed in the office, contained one partial frame of brood and stores with the outside

National Honey Week exhibit in the Lorain County Extension Office is viewed by Harry Vandenberg, as Office Secretary, Mary Lee Mason, puts on the finishing touches. The exhibit was planned and designed by William E. Tedrick, County Extension Agent, 4-H, and was prominently featured on the bulletin board in the reception room at the Extension Office. A mimeographed bulletin of favorite recipes, using honey, is a part of the exhibit and shows just one more of the close relationships between the beekeepers and the extension staff.

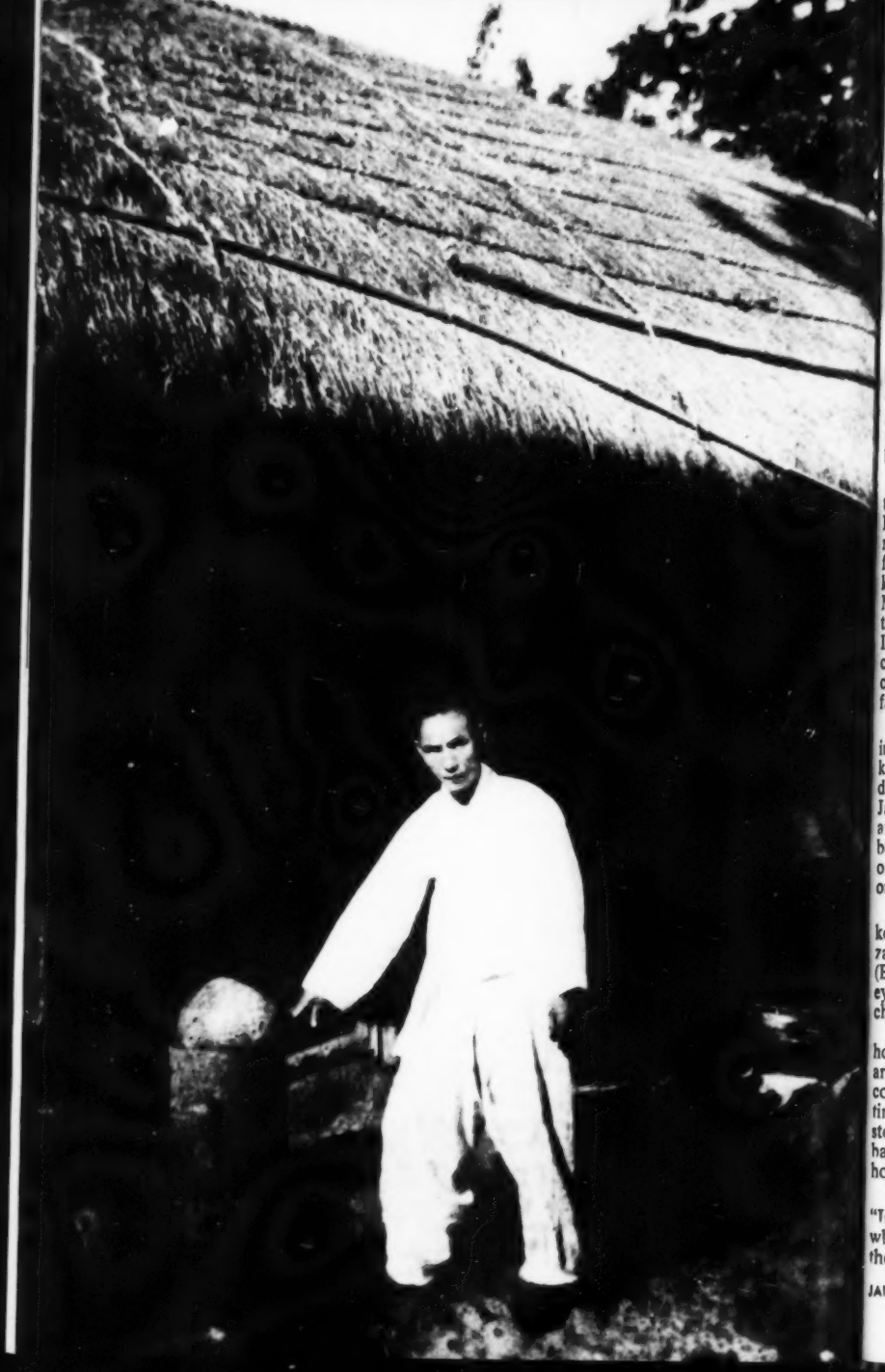
EXTENSION OFFICE

frames each plain comb foundation; and, of course, a relatively small cluster of bees and queen. As time progressed comb was drawn on each of the outer frames, and step by step we were able to see pollen and honey storage and then egg laying and brood development.

It has been interesting to observe the tremendous changes within the hive and also to observe the surprise or amazement of office visitors upon seeing a beehive in an office situation. It has also been satisfying to observe the secretaries as they pointed with pride to developments within the hive as visitors asked questions concerning the bees. The interesting and somewhat mysterious to us, dances of the bees have amused, entertained and fascinated even the most cautious person. The most exciting day of the summer was the day the queen was first spotted busily depositing eggs in one of the combs. While a feed jar of sugar syrup has been available at all times, the bees have used this easy to get source of food only during the periods when flight has been restricted due to weather conditions.

Not all of the experiences have been enjoyable. On a few rare occasions a bee has flown into the office from some open window and immediate help in removing the bee has been requested by the weaker sex. With all their fears and trepidations, the girls were not the ones to collect the only sting of the season. This "honor" went to the county agent, who one day trapped one within the confines of an Elyria Celebration beard. There were also mild objections placed during goldenrod and wild aster season as the somewhat pungent odor of evaporating honey drifted through the office.

(Continued on page 26)



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Ancient Beekeeping Of Japan

At one time in Japan, a man could become rich on the income from 10 hives of bees.

TANJI INOUE
Bee Culture Laboratory,
Suishoen, Moriyama, Nagoya, Japan

I AM GOING to tell you about the ancient beekeeping of Japan and its history. It is a pity that we have no perfect book on the history of Japanese beekeeping.

About 1300 years ago (B.C. 720), in the age of Emperor Kohgyoku, Crown Prince Yohoh of Kudara (today's Korea) brought back one bee colony with four natural combs from Kudara, and kept them in the mountain named Miwa in the Yamato district (which is today's Nara, the capital of old Japan). It was the first trial of beekeeping in our country so far as we know, but to our regret, it is said that trial ended in failure.

It is doubtful if the native bees lived in our country before the Crown Prince kept bees. However, there is almost no difference between the native bees of Japan and the bees of Korea, so they are looked upon as the same kind of bees. I suppose they flew from Korea, or they were brought to Japan by someone.

The old botanical book, the Honsoh kohmokukeimoh, written by Mr. Ranzan Ono, in the second year of Kyohwa (B.C. 1802) says as follows about honey and how to separate honey, in the chapter on beekeeping:

"If you find a swarm of bees in a hollow space of an old large tree, or among large stones, take the honey combs in September or October, cutting down the tree or taking off the stones, and put the combs into a cloth bag and press it and you will get pure honey."

The ancients called it "Kimitsu" or "Ishimitsu", which mean natural honey which people got from the colony in the hollow space or among the stones. (**Ki** means "tree" in English, also **ishi** means "stone", and **mitsu** "honey" in English.)

It was the best and most precious honey of those days. On the other hand, "Kaimitsu" or "Iemitsu" was what they called the honey which they took from colonies at home yards.

How Did the Ancient Pople Catch Wild Bees?

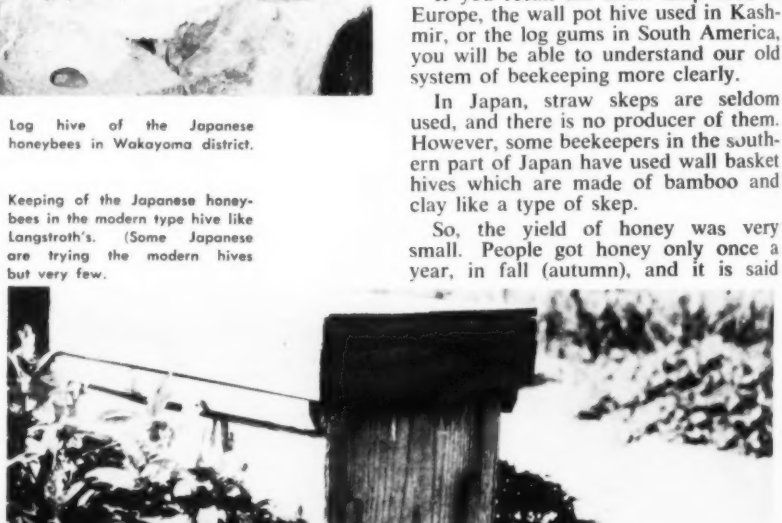
We can find out about it in the book, the Nipponsankaimeisanzue, written by Mr. Tessai Hirase in the fifth year of Hohreki (B.C. 1754), as follows:

"If you want to catch bees, make first of all, a tub or a box, and pour **sake** (a kind of Japanese liqueur) and sugared water into it, and make many small holes in its cover. By putting it near the place where bees live, they will enter it, and when most of the bees enter, you take it home and hang it at the eaves."

Straw hive hanging at eaves.

Log hive of the Japanese honeybees in Wakayoma district.

Keeping of the Japanese honeybees in the modern type hive like Langstroth's. (Some Japanese are trying the modern hives but very few.



In those days people called bee hives, "golden home", or "farmer's gold mine", because honey was so transcendently expensive that farmers could become rich by breeding bees, and some people could make their living by keeping 10 colonies; of course, it was the old-fashioned beekeeping.

In the swarming season, people put or hung some empty box hives here and there, and swarms of bees would enter them. People called them "Machibako". (It means the box which awaits and attracts bees.).

How Did People Keep Bees?

Old people had no knowledge of bees, and so the system of beekeeping was a very primitive one. They kept bees in various empty boxes or barrels which people had in their houses, so bees built their combs as they liked, that is, as they did in the natural condition, in a hollow space of a large tree, and lived as they wished, so people could not observe bee life as we do today.

If you recall the straw skep used in Europe, the wall pot hive used in Kashmir, or the log gums in South America, you will be able to understand our old system of beekeeping more clearly.

In Japan, straw skeps are seldom used, and there is no producer of them. However, some beekeepers in the southern part of Japan have used wall basket hives which are made of bamboo and clay like a type of skep.

So, the yield of honey was very small. People got honey only once a year, in fall (autumn), and it is said

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they could obtain honey only 4 k.g. (about 9 pounds) from a colony.

The Sources of Honey

It was gathered from wild honey plants in the mountains and fields. Some vegetables which people cultivated for their food contributed some nectar for bees.

The kind of bees which were kept in the old system was the Japanese honeybee (a kind of Apis indica). The Japanese honeybees are very gentle compared with the European honeybees, and good producers of beeswax, but, to our regret, they are very timid; for example, when they are surprised at some sounds, they make sounds, sah . . . sah . . . sah . . . , and when they are attacked by hornets or robber bees, they would often flee so we cover the hives with straw mats or thick clothes, and put them in quiet places. It is very difficult to keep the Japanese honeybees and the European bees in the same yard. And what is worse, we cannot use the comb foundation of the European bees for them, because the Japanese honeybees are much smaller than the European bees. We have no producers of the comb foundation for the Japanese honeybees in Japan now.

To tell other peculiarities of them, they do not gather propolis and do not fight enemies as the European bees do very often. The capping of drone cells has a small hole in its center. It is impossible for us to produce hybrids between the Japanese honeybees and the European honeybees.

The districts where many Japanese honeybees have been kept since the old times, are as follows: the Shinano districts (Nagano Pref., famous for the Nippon Alps), the Kai district (Yamanashi Pref., famous for Mt. Fuji), the Tosa district (Kohchi Pref. famous for the district where typhoons often visit), the Iyo district (Ehime Pref. a part of Setonaikai National Park), the Tikuzen districts, the Tikugo district, (both in Kyushu, Fukuoka Pref., near Nagasaki), the Kii district (Wakayama Pref., famous for delicious Japanese oranges).

Diminution of the Japanese Honeybees.

The Japanese honeybees have been decreasing in numbers as the European beekeeping develops and the European bees increase, for the Japanese bees have many weak points in comparison with the European bees.

In the sixth year of Meiji (about 87 years ago), the European beekeeping was introduced to our country for the first time with the bee book, "The Doitsu mitsu bachi yoh hoh". After that in the 10th year of Meiji, the Italian bees were imported from America, and as it was proved that they were superior to the Japanese honeybees, the number of beekeepers of the Italian bees became larger and larger. From the end of Meiji to the age of Taishoh, beekeeping of Japan was its best, and then the price of one colony was higher than that of a horse. So the government made the rule to control such an absurd price.

Though it is only about 60 years since the European beekeeping was largely introduced to Japan, the European bees (Apis mellifica) expelled the native bees.

The following chart shows the change of the number of the Japanese honeybees and the European bees from 1913 to 1918.

Age	No. of colonies Japanese bees	No. of colonies European bees
1913	84,997	48,054
1916	63,735	49,703
1917	46,000	52,604
1918	44,946	58,865

And now, almost all beekeepers are keeping the Italian hybrid bees, using Langstroth style equipment. Last of all, we Japanese bee researchers are very happy to know not a few world bee researchers have been interested in the Japanese honeybees and are studying them.

Old Tires Not Good For Hive Stands

WESLEY A. ORTH
Honesdale, Pa.

I NOTICED a short article a couple of months ago regarding the use of old car tires for hive stands. Did you ever try it? I did and it doesn't work when the hives start to get heavy. First thing you know you have a yard of "Leaning Towers of Pisa". I had nearly a whole yard on tires last year and right when I was the busiest I had to handle all of those supers and set the bottom boards off the tires.

Beeswax honey container in a humidity chamber.

New Light On Yeast Growth In Honey

DR. E. C. MARTIN*

Most agricultural products are subject to damage and have to be protected from insects, molds, bacteria, yeasts, mice, or some other type of spoilage. Honey is no exception.

EGGS ROT, milk sours, wheat is attacked by weevils, fruits and vegetables are perishable and the list could be extended much farther. The loss of food after harvest is still high even though much of the cost of our foods goes into cold storage, fumigation, canning, and other preservative processes. Honey is no exception as yeasts get into all honey and when conditions are right they multiply and produce carbon dioxide and alcohol and some disagreeable by products.

There was no general realization that honey was noticeably subject to fermen-

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tation until beekeepers began to sell honey in bulk to packing plants around the end of World War I. The packers soon found that losses from fermentation in stored honey could be ruinous. Many stories are told of thousands of pounds of honey bursting the cans and spilling to the floors of storage rooms during the 1920's. This of course led to urgent requests for research help in finding a solution to the problem which at that time almost amounted to a crisis The research response was more gratifying than it has often been in connection with apicultural problems. As a matter of fact within a few years the yeasts causing the trouble had been identified and named and much learned about their characteristics and control.

The story of the application of research to the specific problem of honey fermentation is an interesting one and a brief review of some of the past highlights sets the stage for our more recent attack on the problem. F. W. Fabian of Michigan State University and A. G. Lochhead of the Department of Agriculture, Ottawa, Canada, identified and named many of the honey-fermenting yeasts and published bulletins in 1928 and 1929 respectively that gave the fundamental information necessary to intelligently develop control measures. Both of these authors pointed out that there was a correlation between water content of honey and fermentation.

G. E. Marvin of the University of Wisconsin made an important contribution when he showed that when honey crystallizes the crystallized dextrose releases a higher percentage of water to the liquid phase of the honey thereby creating more favorable conditions for yeast growth. Marvin also showed that fermentation was rare below 55°F. and above 80°F. and that alcohol production rarely exceeds 5% in normal honey. This presents an interesting point in that honey wine or mead can be created through yeast action and contain up to 16 or 17% alcohol. However, 2 different types of yeast are concerned. Lochhead showed that wine yeasts which belong to the genus **Saccharomyces** can only grow in honey when it is diluted down with 50% or more water whereas the yeasts which ferment normal honey are very sugar-tolerant and can grow in honey as low as 17.1% water. Most of these yeasts belong to the genus **Zygosaccharomyces.**

Fermentation Control by Heating

Lochhead tested many of the common food preservatives on honey and found that several of them inhibited yeast growth effectively in laboratory samples. However, they have never been used or considered acceptable by the industry. E. J. Dyce tested different packing methods such as hermetic sealing and vacuum pack but they were not effective. Further tests resulted in the recommendation that honey be heated to 160°F. and then cooled as rapidly as possible. This method has been adopted because it is clear-cut and it works as far as killing the yeasts and preventing fermentation is concerned. Actually killing the yeasts is a function of time and temperature and when large batches of honey are heated it takes considerable time to heat the honey and often a longer time to cool it so that lower peak temperatures can be used. Much honey through the years has been seriously damaged by overheating, with the resultant loss of the natural volatile flavors which are of the greatest importance in giving honey a unique advantage over competitive foods. In recent years however, most of the best packers have developed better controls so that overheating does not damage as much honey as it used to a few years ago.

Although heating has given the packer practical control of fermentation there are many situations under which honey cannot be heated. For example many producer-packers do not have suitable equipment to heat honey; many beekeepers store bulk honey under the government loan program or for later sale. West Germany now subjects honey to chemical tests which indicate even slight damage from overheating. Objections to heated honey in export and some special home markets tend to put a premium on honey which is free from any heat damage. All these instances indicate that we should know more about minimizing honey fermentation in unheated honey.

Fermentation and Water Content

Several years ago, W. A. Stephen studied the relationships between moisture content, yeast count and fermentation in over 700 honey samples. Within one year 25% of his samples fermented in the laboratory. He found that yeast

count generally increased with water content. Several studies have indicated that there is not much danger of yeast growth in honey with 17% water or less. Although most grading regulations contain maximum water content requirements, the requirement for first grade honey has never been low enough to ensure freedom from fermentation. In the United States, for instance, the requirement for first grade honey is 18.6% water or less.

All unheated honey certainly does not ferment and sometimes in a case of honey from the same batch we will find some jars fermenting and some not when they have been stored under identical conditions. It is possible that high initial yeast count might make a jar or batch of honey more susceptible to fermentation than another one stored under similar conditions. As will be shown later, subjecting honey to unfavorable conditions during preparation could result in a high yeast count in the packaged product. Years ago Fabian proposed the theory that if honey absorbed some water at the surface, yeasts might develop on the surface and as they became accustomed to the higher sugar concentration they might work their way down throughout the honey. This theory aroused the author's interest in trying to find out more about the relationship between water absorption and fermentation in honey and in the actual location of yeast growth in a container of honey under different conditions. A previous article showed how and to what extent honey absorbs water and what might be done to control water absorption.

Summary of Experimental Work

It is all very well to decide to take samples from different depths in honey containers but the mechanics of doing so presented many problems. The problem was eventually solved by turning to the beekeeping industry and using beeswax honey containers (fig. 1). Small honey samples were removed from any desired depth through holes pierced in the sides of the beeswax containers. The sample was taken and then the hole resealed by inserting a pointed wax plug and searing it off with a hot knife. Yeast count and water content of honey from any height in the container could be determined from these samples. Yeast counts for this purpose were made under a microscope on a haemocytometer which has a 1 sq. mm. area ruled to squares 1/400 sq. mm. in area. The wax containers of honey were kept in chambers with different controlled humidities throughout the experiment. Honey loses water in a low humidity and absorbs water in a high humidity. The problem was to find the location of yeast growth in a container of honey and particularly if the absorption of water led to increased growth of yeasts at the surface of honey and to what extent yeasts might spread from one part of a container to another.

Yeasts Will Grow on the Surface of Honey

The most striking fact brought out in these experiments was that yeasts will grow on the surface of honey when the water content at the surface is higher than 21.5%. The surface layer of a container or comb of good-bodied honey can quite readily rise to 21.5% if it is exposed in moist air. In order to understand this situation it is necessary to realize that honey yeasts ferment honey from below the surface in the absence of air, that is anaerobically. Alcohol and carbon dioxide are produced. The yeasts which grow on the surface however, do not produce alcohol but produce carbon dioxide, water, and other yeasts in great numbers, from the honey and the oxygen of the air; that is aerobically. Yeasts living anaerobically and carrying on fermentation below the surface of honey increase very slowly compared with the growth of yeasts on the surface. This is indicated by the fact that honey in storage usually ferments very slowly sometimes over a period of several months.

In test samples of honey in high humidities yeasts increased aerobically on the surface to the point that the whole surface was a mass of yeasts far too numerous to count, while below the surface anaerobic yeast growth continued at a relatively slow pace. Even in a humidity of 100% it took about 2 months before there was any noticeable increase in yeasts only 2 cm. below the surface. By that time the water content had increased to over 40% at the surface and the surface yeasts were sinking. Table 1 shows changes in water content and yeast count at the surface and 2 cm. below the surface in 3 rela-

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tive humidities. When yeasts are moved from a dilute substance to a concentrated one the difference in osmotic pressure often kills them. However, it is likely that many of the yeasts which sink from the surface produce yeasts which can carry on anaerobically and ferment the honey. No beekeeper or packer would store honey in bulk or retail pack where it could absorb the quantities of water mentioned above but the situation may often apply to honey still in the supers.

Practical Applications

These experiments brought out for the first time in beekeeping literature that yeasts grow in honey in 2 ways (a) anaerobically carrying on fermentation and (b) aerobically in enormous numbers when the surface water content is above 21.5%. Lessons can be learned from this information of particular value to the beekeepers who store unheated honey for extended periods of time. The most obvious lesson is that beekeepers should handle the honey crop so that water is never absorbed to the point where aerobic growth could take place at the surface. This would apply particularly to the handling of supers of honey where a large surface area of honey is exposed to the air and it should be remembered that even if the honey is capped water can be readily absorbed. To take an example, if a beekeeper left supers of honey above a bee escape or in a honey house during damp weather water could readily be absorbed to the point where yeasts would grow on the surface to number many millions per gram of honey. When the honey was extracted and packaged these yeasts would be distributed all through it making the packaged product very susceptible to fermentation unless heated sufficiently to destroy the yeasts. This problem is of greatest concern in humid areas, but even here it can be overcome. The small operator can extract honey quickly before it gets a chance to absorb water and the commercial operator can devise a method of blowing dry air through supers of honey, either in a drying room or more cheaply by blowing warm air through a trough on which supers are kept piled until they can be extracted.

An understanding of the phenomenon of rapid yeast growth on the surface of honey might help to explain periodic outbreaks of fermentation right in the hive in some seasons. If partially-ripened nectar remained in the cells for several days, yeasts could develop aerobically on the nectar surface, particularly if the humidity were high and opportunities for ventilation restricted. If nectar from another flow were stored on top of this the resulting honey would be high in both yeasts and water so that it would be very liable to fermentation.

Pollen May Influence Fermentation

In these experiments it was noted that the number of pollen grains increased greatly at the surface when honey absorbed water. In order to grow, yeasts require certain salts, nitrogen and yeast vitamins. It is likely that some of the things required for yeast nutrition come from pollen. Pollen which rises to the surface when honey absorbs water would be very well located to feed the surface yeasts. This puts additional emphasis on the fact that honey should not be allowed to absorb water.

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Table 1. Water content and yeast count at levels A (on the surface), B (2 cm. below the surface) in samples of honey in 3 different relative humidities.

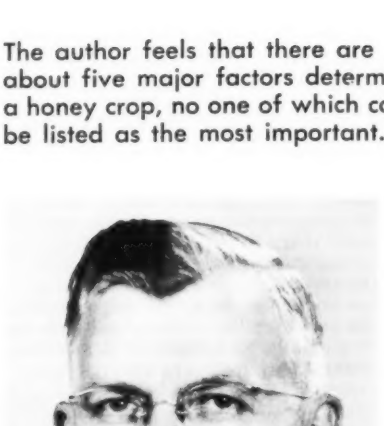
Time in Days	R.H. 66%				R.H. 86%				R.H. 100%			
	Water content%		Yeast Count		Water content%		Yeast Count		Water content%		Yeast Count	
	A	B	A	B	A	B	A	B	A	B	A	B
0	22.5	22.5	105	105	22.5	22.5	105	105	21.6	21.6	125	125
6-8	22.3	22.5	105	100	26.0	22.3	400	100	30.8	21.6	13,000	145
24	22.0	22.5	140	100	29.6	23.0	20,000	180	36.2	23.0	massed	125
66-72	21.6	22.4	200	—	32.5	25.1	massed	200	43.6	35.2	massed	300
84-86	21.5	22.3	200	105	—	—	massed	—	43.2	38.7	massed	40M
95	—	—	—	—	35.1	25.4	massed	165	—	—	massed	—

XUM

The Beekeeper and His New Year

The author feels that there are about five major factors determining a honey crop, no one of which could be listed as the most important.

CARL E. KILLION
Chief Apiary Inspector
Paris, Illinois



THERE HAS been considerable written about when the beekeepers' new year starts. Some have stated that about August 1st is a good time to start the new year. Many start their annual requeening about this time of the season so the young queen will have a good population of young bees to go into winter.

One may pick an earlier or a later date depending upon whether one chooses to favor a certain major factor in relation to the expected honey crop.

I believe we could say there are about five major factors in the production of a crop of honey. These factors cannot be listed as one more important than the others, each is of equal value. They are bees, equipment, honey plants, management and weather, including favorable climatic conditions previous to and including the honey flow.

If we start with any one of these factors or a combination of them to make improvements for our new year, we might just as well pick any of the days in any month and say this is the start of my beekeeping year. I firmly believe we could all improve our way of living and especially our beekeeping if we would all start an improvement campaign with our own work.

We can start our new year with a plan for an improvement in the bees we expect to have for the next year's harvest; — to be very critical with the bees or queens we produce ourselves, or we expect to buy. Under present conditions we must have the best or we are losing ground in the struggle to stay in a profitable business.

Equipment plays no small part in our business. It is always a battle to keep our equipment in the very best of condition. The elimination of poor or unnecessary equipment always cuts down manipulation of colonies, this in turn cuts down production costs. The new year can start with a weeding out process of poor worn out bottom boards, hive bodies, frames, and covers.

A new year may start when we encourage a farmer or a group of farmers to grow more sweet clover or other honey plants. Right now the writer is contacting farmers in regard to honey plants, especially sweet clover.

Management plays a very important part in our lives, whether it be in the apiaries or management in the shop or our other related work in beekeeping. A new year may start at anytime we begin looking at our own shortcomings

and quit blaming everyone else for our own failures.

The weather and climatic conditions are something over which we do not have any control. The writer feels like a new year was started the night of June 27, 1957. During the night and following day 10.2 inches of rain was officially recorded. Unofficial reports were as high as 15 inches in the 24 hour period. Over 9 inches fell in a five hour period. We watched our shop windows break and water pour through our shop for nearly 12 hours. The shop was nice and clean before with asphalt tile floors nicely waxed and newly painted walls and ceilings. As water poured in the windows and out a door, we resolved to put our shop on a hill top. We didn't quite put it on a hill but away from any possible flood damage. For our new year we plan to install a small, but efficient, honey bottling plant that we could not have had in our other shop.

The alert beekeeper who is thinking, planning, and then doing somthing about it, can start his new year anytime. I firmly believe that the most of us do not take enough time out for thinking and planning, if we did our industry would be in a much better condition. We depend too much upon the other fellow to do our own thinking, planning, and even part of our work. The writer loves gardening, but for several years has been unable to grow any vegetables. Our plan for next year is to again grow a few vegetables for our own personal enjoyment.

The beekeepers' new year should by all means include some plans for relaxation. If you like to hunt, then go hunting or fishing or any other sport for relaxation. A certain amount of fun is good for us all.

Our new year will be much better if we all put out a little effort. I do not mean to go all out as Winston Churchill said with "blood, sweat, and tears", but with more thinking, more planning, and getting the job done.

Cleaning Honey By Gravity

ROBERT J. WYNDHAM
Upland, California

FOR THE SMALL beekeeper there is something to be said for cleaning his honey by gravity instead of using the double-boiler method. Especially if he sells his honey in five pound cans, as I do, there may be an advantage in cleaning without the application of heat. I would not know for sure which method involves less labor. But selling almost all of my honey retail, I do know that I have an extra sales point.

When selling my honey, I stress the fact that my honey is **raw**, having all its natural goodness, all of its vitamin content and with its bacteria killing properties unimpaired. Here is how I clean my honey.

From the extractor the honey passes through a double screen, two thicknesses of regular aluminum window screening nailed to a wooden frame. This screens out most of the wax particles. I leave the honey in 50 gallon settling tanks. Slowly the smallest wax particles and most of the pollen rise to the surface, where they form a light brown foam. After about two weeks I take a hand towel, wet it under the hot water faucet and wring as much water as possible out of it. Then I spread the towel on the foam surface. I leave it there half a day or so. Then the foam clings to the towel. I lift the towel off and put it in a big funnel, which is inserted in a five-gallon can. There the honey which came with the impurities drips from the towel. In the spring I use the accumulated dirty honey for bee feed.

This method removes about 90 per cent of the foam. I remove the remainder by drawing a piece of cotton cloth over the surface. After filling my five pound cans, I let them stand overnight. Any cans which show traces of foam are skimmed with a teaspoon. In this way I obtain honey which is reasonably clear without sacrificing any of the appetizing and health-giving qualities which nature meant it to have.

XUM

This neat apiary is owned by John Leddo. Notice the various colored supers; also the fine windbreak.

Beekeeping In New Brunswick

Nothing gripes me more than to visit a fellow who has a nice bunch of colonies just raring to fill the supers and to discover that he hasn't bothered about getting frames or foundation assembled. Too busy all winter?

ADAM WILSON
Fredericton, New Brunswick, Canada

IN ORDER to find how and where bees are kept in New Brunswick, I must tell you something about the province itself—its climate, geography, and main industry.

New Brunswick is the largest of the Atlantic Provinces, having an area of 27,925 square miles, most of which is rolling plateau, and about 80 per cent is covered with forest. Because there are about 600 miles of coastline, fishing is a natural industry. The fact that many of New Brunswick's harbors are free from ice in winter is a great aid to fishing. The coastline is dotted with fishing communities which derive their income from the some 35 species of commercial fish and shellfish. New Brunswick lobsters and clams from cold north Atlantic waters are renowned for their quality.

About one-half of New Brunswick's manufactured products come from her forests, and of this at least two-thirds are pulp and paper products. About two-thirds of the trees are coniferous,

which in order of commercial importance are: spruce, fir, pine, cedar, hemlock, and tamarack. The remainder are hardwoods, among which are the colorful maple, beech, birch, and poplar. Parts of the province are noted for their magnificent elm trees.

The numerous river valleys which cut through the interior of New Brunswick provide excellent farming areas. The farming district of the Saint John River Valley is one of the most notable in Canada. Dairy products are one of the main sources of income. Sale of livestock and poultry is another principal source. Specializing is done in apples and seed crops. Small fruits and vegetables are grown for home use with some regional specialization.

Potatoes are the most important cash crop in New Brunswick. The total annual acreage of this crop is in the vicinity of 47,000 acres. The production varies from 10 to 15 million bushels each year. Potato growing in this province is concentrated in the Upper Saint John River Valley.

Not to be neglected is the mining industry which may soon change the way of life in New Brunswick entirely. Discovery of deposits of unprecedented magnitude of such base metals as lead, zinc, copper, silver, pyrites and tungsten has led to a mining boon which may transform our small province.

The climate of New Brunswick varies with its topography. The coastal areas have a more moderate climate than the interior of the province which, because of its higher altitude, has as severe weather as do many parts of Canada farther north.

In the farming areas, cash returns can be realized from beekeeping. Yields vary from 50 to 150 pounds and more per colony. Bees are especially profitable wherever white and alsike clover is used for livestock production.

The early honey flow extends from June to August. Willows, maples, dandelions, followed by wild cherry and apple blossoms provide early sources of nectar and pollen, but the main honey crop is derived from clover. We find that a two pound package of bees, installed about the middle of April with honey and pollen in combs, will build up to full strength by the main clover bloom. Alsike clovers, white clovers, raspberry and basswood are the chief

One of John Ledda's colonies of bees in the old German equipment.

sources of honey and a blend of these nectars produces honey unsurpassed in quality and flavor.

Yields from late sources are not so dependable, but some years this fall flow gives the largest amount of honey. The fall flow comes principally from goldenrod and aster. The quality is not equal to that of clover, but is good none the less.

Methods of Wintering Bees

Our policy is to overwinter colonies, bringing in some packages in spring to make up for winter losses and for those who desire to set themselves up in beekeeping for pollination purposes. With many pollen and nectar plants in both fall and spring, overwintering of bees is not difficult, although in this province we must take special pains to protect them from the elements. This is because there are few let ups in our long severe winters. Sufficient stores and good queens are "musts" to be seen to in the fall.

Our beekeepers winter their colonies in various groups—some in single and some in double brood chambers, in single, double, and quadruple packs. Our largest producer has wintered in eights with four on the bottom and four on top successfully for a number of years. Some still winter in the cellar. Otherwise, tar paper and shavings outside are popular because of their low cost and practicability.

More and more New Brunswick farmers are realizing that honeybees are becoming a necessity for pollination. We have a number of very fine

beekeepers and a number of farmers who just keep bees—period! Nothing gripes me more than to visit a fellow who has a nice bunch of colonies just raring to fill the supers and to discover that he hasn't bothered about getting frames or foundation assembled. Too busy all winter?

We have been doing quite a bit of importation of hybrid bees for a number of years, but I still wonder about their practicability. The queens are so filled with vim and vigor that their producing power is often nullified by the time it takes to control swarming fever. Old timers who wanted swarms for new colonies would think them a grand thing, and they are just "it" from the package producers' point of view. But, for the ordinary beekeeper or beginner, I don't know.

I hope that nobody will think I am opposed to hybrid bees, but I was wondering about something which might be of interest to those in the areas which are recently suffering from European foulbrood. The old timers remarked that when they had dequeened because of E.F.B. they never requeened with hybrid stock. Their idea of a hybrid may have been different from ours, but they may have had a point.

We still have a lot of the old "German" black bees in northern localities. They are not so prolific, but are good for comb honey production. Although they are somewhat cantankerous when there is no nectar coming in, I find they don't really live up to their reputation for ugliness. A few puffs of smoke will completely disorganize them. They seem to have adapted or climatized themselves over the years to our severe winters, perhaps because their progeny has survived from the fittest.

New Brunswick has so many other attractions now for those people who wish to make more money, that you might think that beekeeping would die out. But it seems that those who have beekeeping in the blood will continue to keep bees as long as there are bees to keep.

MONTHLY HONEY REPORT

(Continued from page 5)

unfortunately, would never happen if needy beekeepers would place their honey under loan with the Commodity Credit Corporation.

Since some retail outlets are trying to depress retail honey prices and then use honey as a leader, here is the national picture on honey prices as they appear on the grocery shelves:

Liquid Extracted Honey

Size of Jar	Price
8 oz.	$ .23 to $ .25
1 lb.	.39
2 lb.	.69
3 lb.	.89
4 lb.	1.19 to 1.21
Good quality-light or amber	
5 lb.	1.39 to 1.50
Dark, strong flavored. Also packed in 4½ pound pails at same prices.	
5 lb.	.99 to 1.15
10 lb.	2.25 to 2.60

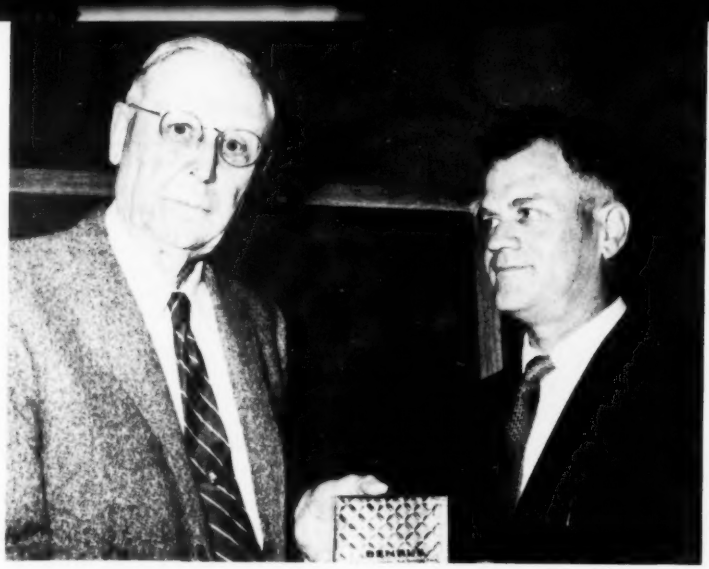
New York obtained a good buckwheat honey crop at last. Prices should be good since there is an eager market. Buckwheat honey crops have been few and far between during the last decade. Hope the present crop is a good omen.

HIVE OF BEES IN EXTENSION OFFICE

(Continued from page 13)

The advantages of the hive in the office have far outweighed the disadvantages and we can certainly point with pride to our relationships with the beekeepers.

We, in the Lorain County Extension Office, have learned much about this valuable pollinating insect and certainly know more about its control by man. In fulfilling our job as extension workers we have through a new and different interest technique presented to many people more information on this important insect. I am sure that at some time many of us have said, "I'm busy as a bee" and now we have further proof that our office has been a beehive of activity!!



Professor Floyd Paddock of Iowa State College, left, receives a gold watch in appreciation for "faithful service to Iowa Beekeepers" at the 46th annual meeting of the Iowa Beekeepers' Association. Presenting the watch, at right, is Carl Soder of Stratford, pres. of the association.

Beekeepers Honor Paddock

Floyd Paddock, retiring professor of apiculture—(beekeeping)—was honored at the Iowa Beekeepers' Association annual meeting here Nov. 13 and 14 for his 39 years' service as secretary of the association.

Paddock, as professor of apiculture, has been the close advisor of the beekeepers' association for most of its "life". He has been in charge of both the educational work, as apiculture professor at Iowa State College, and the regulatory work, as state apiarist.

Paddock has taken a leading part in the modern development of Iowa's honey industry. The state now ranks second in the nation in volume of honey production. Paddock became secretary of the state beekeepers' association seven years after it was founded. He has helped arrange the educational phases of its program ever since. He has led in developments which changed the state's bee industry from a local sideline hobby to an industry with a national market and with some specialists following honey production as a major enterprise.

Instead of an occasional farmer who kept a few hives of bees, the typical beekeeper during these years has become a scientifically guided specialist who "farms out" colonies of bees to legume seed producers, gathers the honey from both "farmed out" and "home" hives for a national market and "integrates" his honey production business with the bee-production industry of the south by shipping in truckloads of southern bee stock to build northern honey.

Paddock reached his 70-year retirement age Nov. 21. Retirement takes effect at the end of the Iowa State College year June 30, 1959. He will settle down to his own "private enterprise" bee and farming activities then.

He was graduated from Colorado Agricultural and Mechanical College in 1911; was associate professor of entomology at Texas A and M College from 1911 to 1915; got a master's degree at Ohio State University in 1916; was Texas state entomologist from 1915 to 1919 and became associate professor of entomology at Iowa State College in 1919. His association with the bee-

(Continued on page 29)

A Dream Realized

HARVEY BEVERS
San Antonio, Texas

IN 1897, as a boy of nine years, our family moved to a farm on the Coastal Plain of South Texas. After the morning chores were finished I would explore our new surroundings, and to my surprise and delight I discovered a colony of bees in the back of the orchard serenely going about their duties, apparently unmindful of their new visitor. When I approached too near their entrance, I was very forcibly informed that visitors should keep their distance.

Immediately I was impressed with the question: What goes on behind the door of the beehive? Why did some carry something on their hind legs while others seemed more busy and carried nothing I could see while still others seemed very busy doing nothing, until I got more stings and learned they came from the guards, attacking all intruders with equal vigor.

Some three or four years later my school teacher invited me to visit his bee yard and see a beautiful Italian queen he had recently imported from Italy. It being the first queen bee I'd ever seen, I was more impressed with her systematic work of laying eggs than I was with her beauty. It was from my teacher I learned several basic facts, namely: All honeybees can sting except drones, but the queen bee will never use her sting except on another queen. Second, the queen lays eggs, sometimes as many as 2,000 in one day during the brood rearing season. Third, if you give bees proper care they will richly repay you with surplus honey if it is within two miles of the hive.

I asked why all colonies in the same yard didn't gather the same amount of honey. I learned there were strong and weak colonies, some making over 100 pounds for their owner while the weaker ones barely gathered enough for themselves for the winter, as they require from 40 to 50 pounds per colony for winter use. The answer revolved around the queen and her attendant workers. A good queen without supporting workers was as useless as a poor queen with a good force of workers. It was my desire to raise the best queens possible.

The mother of my breeding queen was a hybrid, given me because she failed to lay like her owner expected. I placed her with a good force of workers where she showed exceptional ability and her bees were very gentle and active. Crossing this strain with the best of my line, of over 25 years selecting, I seem to have realized my dream in producing a good laying queen as you will see from the accompanying photo, this frame alone having about 7,000 young bees that will hatch within 10 days and be ready for the honey flow from the first flowers of spring, thereby stimulating brood production for the main honey flow of the season.

My first colony here in San Antonio produced 25 pounds in 1932 while one of my breeding queens is from a hive that produced 185 pounds last year without any extra care or attention, and I am anticipating good results from this cross-bred queen's daughters as I raise my own queens now.

BEEKEEPERS HONOR PADDOCK

(Continued from page 27)

keepers' association began immediately.

In 1928 he was promoted to full professor and placed in charge of the beekeeping program for Iowa. He was named extension apiarist for Iowa State College and appointed Iowa state apiarist. He became head of a newly defined area in the college program by his appointment as professor of apiculture. He became the college's only professor in this area.

Paddock's annual report as state apiarist started in 1919 as an account of the bee and honey industry in Iowa. Thirty years ago it developed into an annual running account of beekeeping developments throughout the United States. In the past 10 years it has become a running account of the worldwide beekeeping and honey industry, with contributors from foreign countries. It is as much requested now by doctors, scientists and others outside Iowa as by Iowans.

He has been the author of nine bulletins and pamphlets presenting new scientific findings in popular form for commercial beekeepers. He is a member of nine scientific and beekeeping societies, is a past president of the Beekeepers' National Federation and of the Apiary Inspectors of America.

At the conference which closed Friday, the Iowa Association presented him a gold watch in appreciation for 39 years of "faithful service to Iowa beekeepers".

In their annual election they "promoted" him from secretary to vice president. Other officers they elected were Newman Lyle of Sheldon as president; Glen Stanley of Gilbert as secreary; Earl Robinson of Oelwein and Leo Shirk of Cedar Rapids as directors. Tom Doonan of Des Moines and Henry Hansen of Dakota City are holdover directors.

Removing Queen Attendants

WESLEY A. ORTH
Honesdale, Pa.

DO YOU READ as I frequently do that better introduction of queens is secured if the attendant bees are removed before trying to introduce the queens? And then just how do you get those elusive worker bees out of the queen cage? I have had all kinds of advice to accomplish this and most of it has been bad. One gentleman told me he lets all the bees out of the cage and then catches the queen and puts her back. Just where would you let them all out? I spoke about this idea at home thinking of turning the bees loose in the living room but it was very unpopular.

I finally stumbled on an idea and so far it is the best and easiest for getting those workers out of the queen cage. I cut a piece out of a zinc excluder that will contain just one hole. I then remove the plug from the queen cage at the opposite end from the candy. I keep my finger on this hole. Then I place the piece of excluder over the hole and put an elastic around the cage lengthwise (two wraps) in such a way that it holds the piece of metal but does not cover the hole. I then take a piece of scotch tape and cover the hole which will keep all of the bees in the cage until I get to the bee yard. I do not like to have the queens without attendants too long. If I should be detained for some reason and the bees had been removed from the cage, the queen could easily suffer. When I get to the bee yard I remove the scotch tape and lay the cage down. I KEEP THE CAGE OUT OF THE SUN. The workers will come out in just a few minutes. I usually replace the scotch tape after the workers are out, however, this year I am going to try leaving the tape off the cage as I believe that the inmates of the hive probably would not injure the queen while she was in the cage. From this point I proceed with the introduction.

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NEWS REEL

Officers — 1959 Cook-Du Page Beekeepers' Association. Standing Left to right: L. P. Baker, Director; Henry Dunn, Director. John Lis, Director; Joseph Sedlak, Vice President. Seated Left to right: Mrs. Grace Sedlak, Secretary-Treasurer; E. G. Robinson, President; and Elizabeth Smith, Hostess.

BEEKEEPERS' QUEEN — Sweet as honey is Miss Judy Whiteley, seated, of South Miami, Florida. Her crowning as Miss Florida Honey Queen was the highlight of the first day's session of the two-day conference in Shamrock Village of the Florida State Beekeepers' Association. Miss Whiteley, a Junior at Coral Gables high school, will represent the state group in competition for the national title. Other contestents, from left are: Miss Peggy McRae, of Bristol; Miss Betty Greenwood, of Tampa Bay; and Miss Caroline Brady, of Winter Park.— News-Tribune Staff Photo by Len McNulty.

Personnel
Tenn. Bee
Little, Sta

JANUARY,

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QUEEN ANN (Mrs. Hans Kuerschgen). — Honey Queen of Eastern Missouri Beekeepers who will reign over the 1958-1959 beekeepers' social season. Mrs. Kuerschgen recently came to this country with her husband from Germany where he engaged in beekeeping.

Personnel of picture: L. to R. Commissioner of Agriculture, W. F. Moss; C. L. McGehee, President of Tenn. Beekeepers' Association; Honey Queen, Miss Joyce Ann Bowen; Governor Frank G. Clement; L. H. Little, State Apiarist.

The Future For Beekeeping

S. JOAQUIN WATKINS
President of The American Beekeeping Federation, Inc.

THE FUTURE for beekeeping and for beekeepers can very well be bright provided a concerted and united effort is made by all the various segments of our industry to solve our many problems.

At the present time beekeepers are quite concerned with declining honey prices and increasing costs. This year's weak market was caused in part by the large crop of honey in California, the practice of most buyers during the past several years of purchasing their requirements as they need them (keeping inventories low) and by producers trying to force honey on a slow market. The tendency on the part of the packers to let the producers carry the inventory is good business on their part, but it does quite definitely force the overall market price of honey downward due to the necessity and custom of many producers of dumping their honey on the market as soon as it is ready. This is done even though the market is weak at that time. During a period of declining prices this further weakens the market.

In order to prevent this disturbing influence, the producers will have to adopt a more orderly marketing method and feed honey into the market as it is needed. Fortunately, at the present time, the cooperatives withhold an ever-increasing percentage of the crop from the immediate market. The Loan and Purchase Agreement phases of the Honey Price Support Program should be used by many more producers, especially those who are in need of operating capital. To make this procedure function better in the interest of the producers, the beekeeper organizations should work toward an extension of the redemption dates for the loans or at least obtain legislation that would reduce the possibility of producers having to sell large quantities of honey in a short period or let it be taken over by the government. Also, a more realistic support price figure is needed.

Currently, the United States Department of Agriculture is conducting a "Honey Marketing Research" which should reveal methods whereby our marketing procedure could be improved to the advantage of all.

We all remember the rising markets of 1954 and 1955 which were no doubt caused primarily by the packers having to bid against each other in order to assure their future needs. The unusual export demand for white honey played an important part in this favorable market. The shelf price for honey has decreased very little since then, but the price paid the producer certainly has.

Another means whereby the returns to the producer can be increased is by increasing the per capita consumption of honey in our domestic market by using better and more effective honey promotion methods. The industry is faced by decreasing per capita consumption and this can be solved by a united effort from all segments of the industry. It is my understanding that at least partly due to the

efforts of the California Honey Advisory Board, the per capita consumption of honey in that state has been increased.

The industry is small and divided into so many distributing outlets, that few, if any, can afford to put on a real Honey Promotion Campaign. Realizing this, the industry is at the present time trying to develop a Check-Off plan whereby sufficient funds can be raised to enable it to compete with other foods for the consumer's food dollar. Support of this plan is a "must" if the industry is really going to promote the sale of honey.

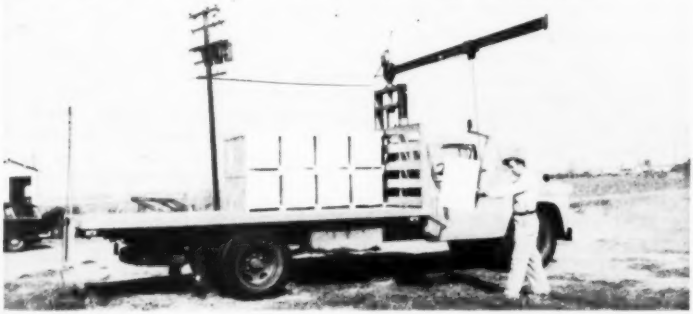
One of the more pressing problems of the producer and the packer as well, is the increasing cost of doing business. Labor, materials, freight charges, and equipment of all kinds have more than doubled in cost during the past few years. We not only have to get a better price for our honey, but we must operate more efficiently and decrease our over-all operating expenses. This can be done in part by using such labor saving devices as the hive and super loader, automatic comb uncappers, etc. Yes, this equipment is too expensive for many small beekeepers, but a possible solution would be custom extracting plants, centrally located, using the best labor saving devices and a battery of extractors operated by skilled labor. These plants should be able to economically extract the honey from the comb and pack it in retail containers, thus saving container and handling costs. Unless the industry develops and adopts more economical methods, it cannot survive.

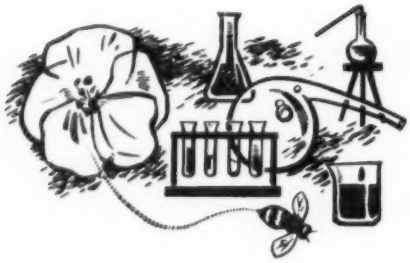
One plan for decreasing production cost is logically to increase production per colony. The beekeepers will have to adopt better production techniques in order to save on costs per unit. A bright spot in this respect is the development of the hybrid bee. Beyond question, hybrid bees, selected and bred for particular areas and purposes, will be an increasingly important phase in our industry.

Decreasing bee pasture and the extensive use of insecticides are both pressing problems. A possible solution: better education of both the public and the farmer as to the necessity for protecting the bees as essential pollinators. A good start along that line has been made, but a well planned publicity campaign is needed to accentuate the idea in the mind of the public. In many areas, realistic legislation may be necessary. Also, the industry members will have to encourage the planting of so called waste lands to plants suitable for bee pasture. This can be managed by selling the proper agencies upon its importance to the survival of the honey industry and thus the insurance of a plentiful supply of pollinators.

In the way of a summary it must be emphasized that the prime problem of the honey industry at this time is methods to increase honey sales. We need a solution to our marketing problem. A logical solution would be through united effort, a campaign of education and publicity as to the real merits and essential goodness of honey as a food, followed by better and more aggressive merchandising and selling techniques. The industry organizations should furnish the education and publicity, while the actual merchandising and selling would be the prerogative of the distributors. Yes, our future can be bright for all segments, but the realization is up to the industry members.

Work saving devices such as the one below will help increase future production.





Research Review

DR. ROGER A. MORSE
Research Editor of Gleanings
and Ass't. Prof. of Apiculture
Cornell University, Ithaca, N. Y.

Blueberry Pollination:

BEEKEEPERS IN New England have been renting bees for the pollination of low bush blueberry for some time but little research has been done until recently concerning the pollination requirements of this plant. During the past two years Dr. Lee of New Hampshire has studied the subject and confirmed that without insects for pollination there would be no blueberries. Whereas wild bees are present they are not sufficiently abundant to pollinate the large fields which are now in use and thus honeybees are necessary.

In cage tests 67 per cent of the flowers in the cages set fruit and over 90 per cent of the fruit matured. Lee noted however, that there is a great variation between blueberry clones. This however, is due to the fact that blueberry fields are not planted but rather are wild areas brought under management.

Lee, William R.
Pollination studies on low-bush blueberries. Journal of Economic Entomology 51: 544-5. '58.

Honey Wine Production:

THE ANNUAL Directory Issue of Wines and Vines (a wine trade journal) lists three concerns as making honey wines in the United States. None are large companies and they all make other wines too. All three are located in New York City. Shortly after World War 11 there were 11 concerns making honey wine in the New York area.

Annual Directory Issue
Wines and Vines. 9-A. 1958.

Russian Beekeeping:

THE DIRECTOR of beekeeping research in Russia makes many interesting statements in a recent article. He says the movable frame hive was invented by a Russian in 1814 who later kept 3000 colonies in his new hive. Later in the article he states that, "prior to 1917 beekeeping was of an amateur nature, the apiaries were small and 4-5 colonies were kept in fixed comb hives." The discrepancy between these two statements leads us to think the invention of 1814 didn't have much effect after all.

It is reported that honey is used in medicine and that some institutions are having success with bee venom, royal jelly and propolis. No mention was made concerning how or for what these materials are used.

Because of the size of the country, management systems vary but bees are wintered in cellars in some areas. The author states there are four beekeeping equipment factories in Russia while 20 plants process raw wax and 50 produce comb foundation.

The article is to be continued. It is so written as to suggest that Russia might be a good place to keep bees. He mentions beekeepers but doesn't say who owns the bees.

Glushkov, N. M.
Beekeeping in the U.S.S.R. British Bee Journal 86: 326-7. 1958.

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FROM Foreign LANDS

Translated and Edited by ERIKA BARTH, San Antonio, Texas

The Hydrogen Bomb and the Bee:

AN ENGLISH member of Parliament, John Strachey, made the following statement of interest to beekeepers: The country that owns the hydrogen bomb is given the same power the stinger gives the bee. The bee can use her stinger to sting but it will mean her self-destruction.

Sudwestdeutscher Imker. May 1958.

Color Photo Appears on Cover of Bee Journal:

HIGH PRAISES are in order for the SUDWESTDEUTSCHER IMKER (Southwest German Beekeeper) for the use of color on the cover of their September 1958 issue. As far as is known to me, your Gleanings reviewer, this is the first full color cover for any bee journal in the world. It is good to see another bee journal elevate its professional standards, and in this instance, after only a decade of publication.

[Years ago Gleanings had an enlarged picture of a worker bee on the cover, showing the pollen, —in full color.—Ed.]

Sudwestdeutscher Imker. September 1958.

New Bee Strain in Thuringia, Germany:

DR. O. ORMAI and Dipl.-Landwirt (Agriculture Scientist) N. A. Chmaerz were able to breed a new bee strain with the help of Paul Zahn, a well known queen breeder in Rudisleben, Germany.

After countless experiments they finally succeeded in 1955 for the first time to artificially inseminate a queen of the north race with the sperm of a black bumblebee (Bombus bombus) drone. Master apiarist Zahn wintered two strong colonies of this new strain in 1956.

The special characteristics of this new crossing are: dense black hair, larger honey stomach, longer tongue. Size of cells remain the same, since hair first develops on the nurse bee. These bees are extremely gentle, stings are very rare. Protected by their dense hair, they fly at temperature barely above freezing. She brings in more pollen and works alfalfa and red clover with great success. Mr. Zahn got a 73 and 79 kg. honey crop from his two colonies last year. (1 kg. approx. 2½ pounds.)

For experimental purposes Mr. Zahn planted an 0.5 ha. size field with Christmasroses (Helleborus niger). The two colonies eagerly worked this field on nice days in January and February. Scales showed a 5 and 6 kg. increase in four days.

Officers of the Arnstadt Beekeepers' Association have made extensive preparations to speed-up queen breeding of this new strain this year in order to perhaps soon give queens to other provinces as well. Twelve queenbreeders have therefore united in order to systematically breed these queens.

Research is being continued this year. Experiments are being made to breed in a third strain, the white-ringed bumblebee (Bombus pundus). Nectar-gathering qualities and resistance should further be improved. The honey crop should further be improved by the working of the well-known "ice flower" (Kalaus florus).

Although orders for queens are now being taken, unfortunately, queens cannot be imported into the United States because of disease preventing restrictions.

Further information on this new strain can be obtained from Walter Hillmann, Arnstadt, (this address is incomplete but the only one known to me,) and Paul Zahn, Rudisleben, Kreis Arnstadt, Germany (Eastern Zone).

Leipziger Bienenzeitung, April 1958.

Live and Learn

PROPOLIS PETE

IT'S GOING TO BE a long, long winter. Whether it is hard or mild, stormy or calm, time will drag and drag, waiting for those first warm days of spring so that I can see what has happened during the so called dormant period.

If you read this page regularly, you know the troubles that I have been having with dead and dying brood. Well, it's pretty well established that it wasn't disease, at least it wasn't any presently known disease. So the only other reason why I had troubles would be poison of some kind, or a biological weakness that hasn't been proved. Or, of course, unless I have invented a new disease all my own. The most likely theory strongly indicates that the field bees got a dose of poison and never got back to the hive. A significant fact was that in the colonies showing the most dead brood, there were very few old bees. Apparently the queen laid enough eggs, and then suddenly there were not enough bees to care for the brood, consequently it died.

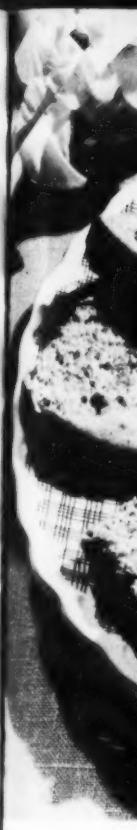
If this theory is correct, how come then that it only hit a few of the colonies? Well, we don't have any big patches of pasturage around here, and since it is known that the bees send out enough fielders to harvest the nectar available and no more, it could be that in their own way they have divided the territory into districts allocated to whoever got there first. There was an awful lot of airplane spraying and dusting around here last summer, and those fellows don't seem to care how much territory they cover. It is easily possible that the drift went into patches of bloom that were being worked only by the colonies affected.

Of course, all of this don't explain why **every** colony had scattered brood right from the start of the season. Towards the end of the summer, this symptom seemed to ease up a bit, but it never was entirely corrected. The colonies that I requeened late in the season had a regular brood pattern which is a story in itself. Maybe I'll take that up again some time. But because of my troubles, the bees went into the winter in poor shape. I think that they have enough stores, but the clusters are on the small side. That could be bad if we have long bitter cold spells, but thank goodness the clusters were almost all young bees that should have the "oomph" to come through if they get half a break. So, to repeat myself, it's going to be a long, long, winter, and I'm getting my order in early for package bees to fill the empty stands. Enough of that for now. You will read the conclusion to this tale of woe next spring.

When I was a youngster, lo these many years back, I had a teacher who claimed that every problem had a simple solution if you dug deep enough, or waited long enough for it to solve itself. Here is a good example. I have solved my twin problems of where my bees got that yellow pollen in November, and I also found out what that mysterious yellow weed was that seemed to be the source, but which I never saw the bees work. Silly isn't it, that nobody I asked recognized it as wild turnip. That problem was solved about a minute before the late pollen problem was solved. Here's how it came about:

One of the stands where I sell my honey is owned by an intelligent and up-to-the-minute farmer. After winning first prize at the County Honey Contest (that's a sneaky way of getting that over, isn't it?) I took the blue ribbon over there to show this chap what good honey he was selling, since this is the first year that he handled it. On the way over, I saw a patch of my yellow weed and picked a sprig with the intentions of sending it to Dr. Lovell for identification. When I met this chap he asked what I was doing with that wild turnip. I told him that I was going to send it away for identification. 'Taint necessary, says he. It's wild turnip, and a darned nuisance it is. Then I told him about my pollen problem. He laughed and said that it was broccoli, and to prove it took me behind his barn and showed me a row that had gone to bloom. There were a million bees, at least half a million anyway, gathering my nice yellow pollen. I always claimed that the source

(Continued on page 44)



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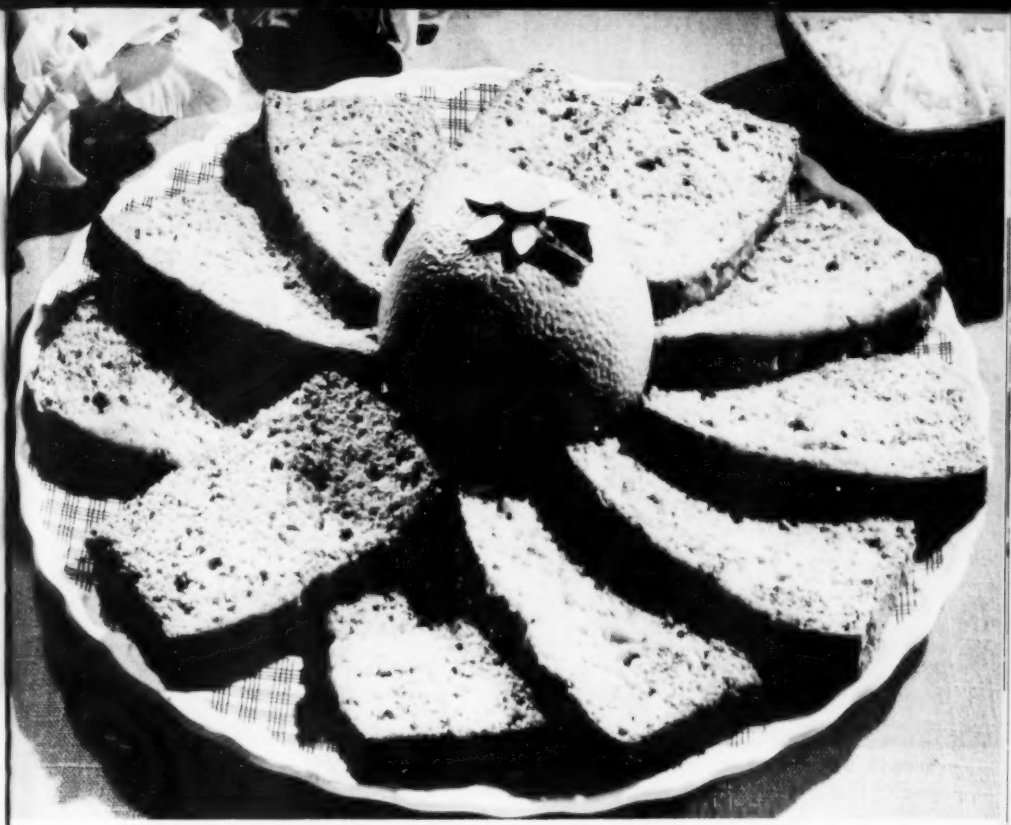


Honey Nut-Orange Bread.
—Photo courtesy Kellogg Co.

Our Daily Bread

MRS. BENJ. NIELSEN
Aurora, Neb.

QUICK OR YEAST, honey breads are a delight. Easy to make; a joy to serve. Breads, muffins, rolls, all have a rich, deep golden brown crust, a subtle flavor and super moist fresh keeping qualities. Happy the cook who makes a practice of keeping two or three varieties of nut breads on hand. She will never be embarrassed for refreshments should unexpected guests arrive.

The twice baked honey rolls below may be stored on the shelf one week, in the refrigerator two weeks, or in a freezer up to three months before completing the baking process.

Honey Nut-Orange Bread

Three cups sifted flour, 5 teaspoons baking powder, 1 teaspoon salt, 1 cup honey, 1 cup sliced Brazil nutmeats, ¾ cup sliced orange peel, 2 eggs, 1 cup milk, and 2 tablespoons melted butter.

Scrape bitter white pulp from inside of orange peel. Cut peel into thin slices. Cook until tender in boiling water. Drain and dry. Meanwhile sift together flour, baking powder and salt. Add nuts and cooled orange peel. Beat eggs to lightness, add honey gradually, beating hard. Stir in milk and melted butter. Add to dry ingredients and mix well. Pour into well-greased loaf pan and bake in moderate oven, 350° F., for 1 hour.

(Continued on page 60)

Common Dandelion (Taraxicum officinale)

Let's Talk About HONEY PLANTS

HARVEY B. LOVELL
University of Louisville
Louisville, Kentucky

DANDELION (**Taraxicum officinale**). One of our earliest spring honey plants is that well known and much maligned weed the common dandelion. Even as far north as Kentucky it often begins blooming in late January in warm southern exposures. Of course in the northern tier of states, it blooms much later. I have data on the dandelion from nearly all the states and several Canadian provinces. Here are a few sample comments.

Vermont. Phil Townsend writes that bees gather more honey from dandelion than from fruit bloom when both are in bloom at the same time.

Missouri. Karl Kalthoff reports that dandelion will stop yielding on clear bright days when the temperature goes above 75 degrees. It stops yielding about the middle of the afternoon on cloudy days (flowers close).

Nebraska. Elmer Monson considers dandelion very excellent for spring build-up and adds that it would be hard to get along without it. The honey is very strong, the color of the flowers.

Colorado. John Holzberlein states that dandelion blooms from May 1 to June 10 and yields a yellow honey with a sharp-strong flavor which granulates the fastest of any honey. He considers it his best spring build-up plant. He has made surpluses up to 60 pounds from strong colonies, but usually obtains from 20 to 30 pounds per colony. He sells the honey to bakeries.

Montana. Parson Pile told me that his bees once made 6000 pounds of dandelion honey (in 1926). In Ross's Hole in spring when bees are moved in, they often average 20 pounds per colony. Pile thinks that not one person in a thousand can like the flavor of dandelion honey. Surpluses are generally considered a nuisance, yet beekeepers in Montana could not get along without this honey for spring build-up.

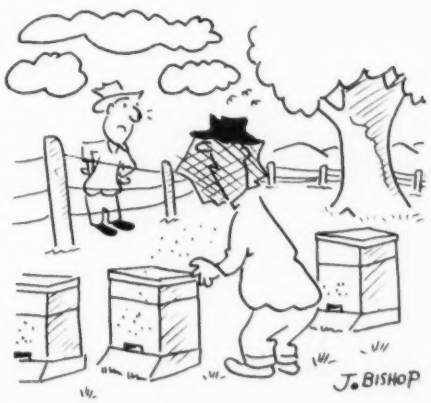
Alberta. A. S. Bird of Edmonton writes me that dandelion blooms from May 15 to June 20 and produces a heavy-bodied honey with a mild flavor and almost no odor. His average crop is 110 pounds to the colony with tops of 209 pounds (with 10 colonies). It is well known that northern regions with their long days and bright sun produce a lighter, milder honey than southern regions, which may account for Mr. Bird's unusual description of dandelion honey.

Ontario. Allan T. Brown reports that dandelion blooms from April 25 to May 12 and that the honey is golden in color with a good body, but with a strong odor and flavor. Most of this honey is used in brood rearing. Dandelion is the main source of early spring pollen.

Ohio. Mr. Jay S. Marshall, Alliance, Ohio, recently sent me a plant to identify. It proved to be motherwort (**Leonurus Cardiaca**). He writes "This plant has grown around my home ever since I can remember and I am 71 years old. Back in the 1890's my grandmother chopped one down with a hoe and called it an old cowthwort (an old name for motherwort). I have been letting clumps of it grow in my back yard as my bees like it and work on it a great deal. It blooms from July to September." He adds that he gets most of his honey from coral berry, sweet clover and bird's-foot trefoil, the latter two planted on an old stripmine. The honey from motherwort has been described as mild and light colored, although there is rarely enough in any one place to make a surplus. I have seen bees working it eagerly for nectar in many parts of the country.

Cuba. Dr. Jose M. Alea of Gibara, Cuba, writes that "Cuba has species in her honey flora that flower all the year more or less according to the rains, but I desire to plant two hectares of perennial honey plants to provide bee pasture for my apiary. Do you think that white sweet clover would be adequate for the Cuban climate or would you recommend **Lippia lysioides** from Brazil?" More and more the variety of sweet clover called Hubam is being planted in the south and perhaps it would do well in Cuba.

South Carolina. W. A. Stephen, Extension Beekeeper, recently sent me a sample of honey which was made from **Bidens mitis**, in Union County in the south central part of North Carolina. This species closely resembles Spanish needles. Both the honey and the combs are a rich yellow and the flavor is a little stronger than the Spanish needle honey. He adds "The Soil Bank is giving us a changed picture with regard to our fall honey flow. We have had very good weather this fall which has resulted in a phenomenal aster flow. It hasn't shown up as surplus in many places because our bee hives were depleted of honey by the drought during the summer, but now many of the brood chambers are absolutely full with only a dozen or so square inches of brood. I predicted earlier that we would lose a great many colonies this winter, and there is no doubt that we will in the area where asters have not yet covered the acreage that we found through the Piedmont particularly."



"Now don't tell me one of them little scamps crawled under the fence again!"

Granular Insecticides And The Bee Industry

Granular insecticides may be the answer to the beekeepers' poison problems.

R. J. WALLSTROM
South Dakota State College
Brookings, South Dakota

THE USE OF the term "insecticide", has long had the same effect on beekeepers that the headless horseman had on Ichabod Crane. Careless spraying of fruit trees and the use of arsenicals on cotton in the past have had the effect of adding a touch of realism to this inherent fear. With the coming of DDT and its multitude of allied chemicals following World War II many beekeepers started sitting up nights carving their obituaries.

Strangely enough, just as our early ancestors learned to gain an advantage from the phenomenon known as fire, the beekeeper is beginning to realize that insecticides can be useful to his activities as well as to those of the farmer, orchardist, and gardener. He has found that insecticides, by improving the quality of orchard products, increases the interest of the orchardist and, therefore, the acreage of fruit bloom. He has seen that insecticides applied to legumes create healthier plants which have a longer blooming period. The aid insecticides have given in legume seed production has made increased acreage of legumes in blossom available to his bees. However, just as the early caveman was occasionally scorched by a fire brand carelessly waved about by a neighboring cave dweller, the beekeeper has found that improper use of insecticides by his neighbors can be injurious. While the caveman educated his offending neighbor with a well-placed thump with his stone club, the modern beekeeper is restrained by custom to depend on different educational channels. This education in the use of insecticides is making good progress. In many cases this progress is due to the efforts of the beekeepers themselves who point out the advantages of honeybees and the need to protect all pollinating insects.

Another Aid to Education is Research

Research in methods of applying insecticides has recently taken a long stride forward in the development of a granular form of insecticides. Insecticides are impregnated in a clay or other suitable carrier which is broken down to a sand-like consistency for spreading without the drifting effect which occurs when dusts are used. Granular insecti-

cides can be applied with any type of commercial fertilizer spreading equipment as well as by airplanes. Various insecticides in this form have shown great promise in the control of the European corn borer in corn, grasshoppers, the clover leaf weevils, and the alfalfa weevil in legumes, as well as several types of soil infesting insects affecting field crops. Certain systemic types of insecticides have been found to provide better control when applied in the granular form than the spray form. Continuing studies are revealing more and more uses for granular insecticides either by replacing spray and dust applications or by providing insect control for previously uncontrolled pests.

Granular forms of insecticides offer many advantages to the farmer. The most appealing feature is the elimination of the need for a supply of water as is required by spraying operations. Except for applications in tall growing crops such as corn or for exact placement in the soil, the farmer needs no special equipment to spread granular insecticides. He can use end-gate seeders, fertilizer spreaders, cultipackers, and grain drills with good results. For controlling the alfalfa weevil, he can make his applications during the winter months, even on top of light snow cover, if he desires. Such timing of applications could not be made with spraying equipment which is susceptible to freezing temperatures. This use of the winter months provides control and eliminates crowding of the spring work schedule. For grasshopper control in forages, the use of granular insecticides provides a means of control with a minimum of forage contamination. The same advantage is obtained when granular insecticides are directed into the whorl of the corn plant for first brood borer control.

Advantages of Grandular Insecticides are Many

The danger of drift, so common with dusts and sprays, is practically eliminated. Granular forms of certain insecticides can be combined with sweet clover seed and applied at the same time in seeding to give protection from the sweet clover weevil. Sprays control the weevil but necessitate another field operation during busy spring months which is omitted by most farmers. This treatment method has renewed the farmer's interest in sweet clover in many parts of the midwest. While the control of alfalfa seed pests in general has not yet been demonstrated through the use of granular insecticides, there are sufficient indications of favorable results to warrant much additional work in this field of insect control. The lack of floral and foliage contamination in forages treated with granular insecticides should aid the beekeeper by eliminating bee loss and increasing bee pasture.

Yes, the headless horseman aspect of the term "insecticide" is fading away in the mists of time. In its place the beekeeper is finding the insecticides to be valuable tools of agriculture. Just as with other new tools, as the rough spots are smoothed from them through research, education, and general use they become increasingly useful and of benefit to all.

Our Cover

THIS PICTURE may give one the shivers. It is a hive owned by Thomas Doonan, Des Moines, Iowa. What caused the snow to swirl around and leave a bare spot near the hive we do not know. Anyway, it looks somewhat artistic and is one of nature's freaks. We hope the bees survive the winter. They should if they have plenty of good food.—Photo by Thomas Doonan, Des Moines, Iowa.

"HOLD IT! DON'T SWING! THAT'S A WORKER OF THE HONEY BEE FAMILY YOU'RE ABOUT TO SWING AT!"

Seventeenth

At Bologna the subjects discussed were arranged in four groups, Antibiotics, Royal Jelly, Diseases of Bees, Bee Botany. The chairmen of the various sections gave a summary of the papers

tours were laid on with visits to Castelgandolfo, the summer residence of the Pope, the Tivoli Gardens, also 20 miles from Rome, and to numerous places of

Seventeenth International Beekeeping Conference

DR. J. N. TENNENT
From November 1958, Scottish Beekeeper

THE XVII International Beekeeping Congress was held in Rome, 19th to 23rd, September, 1958.

In order to prevent the program being overloaded with scientific papers, a preliminary meeting for research workers was held at Bologna for two days, 15th to 17th September. I was privileged to deputize at this meeting for Dr. Jeffree, Chairman of the S.B.A. Research Committee.

At Bologna the subjects discussed were arranged in four groups, Antibiotics, Royal Jelly, Diseases of Bees, Bee Botany. The chairmen of the various sections gave a summary of the papers to the main gathering at Rome.

At Bologna, provision was made for a visit to a commercial beekeeper and two queen rearing apiaries, all within 20 miles of the city. This was one of the high lights of the congress and provided a brief insight into beekeeping and its problems in Italy.

The numbers attending the main congress at Rome reached a new high level, nearly 1000 people representing 35 countries enrolling as members. This demanded much preliminary organization and this proved to have been of a very high order. The congress was fortunate in having at its disposal the premises of the Food and Agriculture Organization of the United Nations. This is a large building built, we are told, with money from American aid and equipped with every modern convenience as a conference center. The hall was furnished with simultaneous translation of speeches in French, German, English, and Italian. Air conditioning was a great boon in the prevailing hot weather.

All the time was not devoted to lectures. Social intercourse is an important aspect of these gatherings when one can make new friends and renew contacts made in previous years. Sightseeing tours were laid on with visits to Castelgandolfo, the summer residence of the Pope, the Tivoli Gardens, also 20 miles from Rome, and to numerous places of interest in Rome itself. The congress dinner, held at the close of the proceedings, is always a very popular occasion.

The visit to His Holiness, the Pope, proved to be of great interest. Speaking in French he gave an interesting address to the assembled guests.* His speech revealed an expert knowledge of bees and beekeeping and, as was to be expected, he drew many lessons from the life of the bee for the good of mankind. Following the address and the Apostolic Benediction, a gift of honey in large ornamental jars, a model ruskie in silver and some books on beekeeping were presented to His Holiness. The Pope then mingled with the guests when representatives of different countries were presented to him. Thereafter an invitation was extended to all to visit the gardens and the apiary.

Of the many papers submitted to the congress one can only make here a very brief selection. There must have been over 100 papers read and in the main, these were designed to provide a general review of a subject which could be understood by all.

Royal Jelly occupied the attention of the congress perhaps more than any other subject and provided an element of controversy. France had much to

* Summarized on page 744, December, 1958 issue.

say it its favor as a food and a medicine for human beings, beekeepers in France having benefited in income in 1957 from the sale of royal jelly to the extent of 500 million francs. Germany and Italy had also been investigating the properties of this substance when administered to human beings. By some, royal jelly was claimed as a highly specialized foodstuff, by others it was held to have special properties as a drug of great benefit to children and elderly people and it was even claimed to be of great value in such diseases as Mongolism in children and cancer.

Many members of the congress felt that the good name of beekeeping and beekeepers was being impaired by the fantastic claims made in some quarters for royal jelly and insisted on a note of protest being recorded by the congress. Ultimately a rather lengthy resolution was approved. Reduced to one sentence it means that while beekeepers must retain the freedom to sell royal jelly like all other products of the hive, the congress deplores the irresponsible publicity given to this substance with claims far in excess of its known properties and therapeutic uses and welcomes the formation of a committee to include and co-operate with medical men in the continued investigation.

Mr. Hambleton, U.S.A., read an interesting paper on the control of A.F.B. in U.S.A. He discussed the question why this disease is more prevalent in some districts than in others. He ruled out bee resistance to the disease as the explanation and thought the most likely reason might rest with some food element concerned in the development of the disease. "Can this be accounted for on the basis of the metabolic requirements of B. Larvae?"

Controversy still rages over the relative merits of burning and sulpha treatment. Generally the apiary inspectors favor burning, largely because they cannot depend on the beekeepers using sulpha drugs in the right way and at the right time. Beekeepers, on the other hand, wish to abolish burning and the use of sulpha drugs is increasing.

Another subject of increasing interest to beekeepers is the European Common Market. If this is established it will affect beekeeping and the sale of honey in Britain as in the other countries involved. Many problems arise and those who favor regulations and controls will find ample scope. As Evenius of Germany said "Everything that can be regulated should be included." What is honey? The definition in France, Germany, and Switzerland is different in each case. In one case the term is applied exclusively to the juice derived from plants by bees. In another case artificial honey is recognized, a sugar solution perfumed with honey. A uniform definition will therefore require to be reached. Or take the water content. Is this to be stated or not? Is there to be a regulation as in U.S.A. as to the percentage of water allowable? If a European Common Market is set up then obviously the country of origin of the honey will be cancelled. Instead will be shown the type of flora from which it is obtained. A multitude of problems are raised, not forgetting questions of tariffs and quotas.

Altogether some 100 papers were read at this congress. It is hoped to publish these in two volumes and in due course a copy should appear in the Moir Library. Meantime those interested can find there a copy of the synopsis of each paper.

In the business session Apimondia was finally constituted as an International Federation of Beekeeping Associations and a draft constitution was approved with certain alterations. This enables Apimondia to be affiliated with the Food and Agriculture Organization (F.A.O.) of the United Nations. The new President, Dr. A. Zappi Recordati, was appointed General Secretary in succession to Dr. Morgenthaler. As President he will hold office until the next congress which was fixed to take place in Madrid in 1961.

LIVE AND LEARN

(Continued from page 36)

was close. This stuff couldn't have been more than a minute's flight from my bee yard.

Now for the payoff. Everybody has been telling me that my mysterious pollen was from witch hazel. That was possible, but I couldn't find any of it around. And two days before I located the real source, I got a letter from a Mr. A. C. Gowing telling me to look for broccoli. So, Mr. Gowing, thanks again, and let's call this a P. S. on my letter to you.

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Identifying Pollens

G. L. JEFFERS,
Glen Allen, Virginia

IN VIRGINIA, the 1957-1958 winter set a local record for a long period of cold and inclement weather. Because of snow, sleet, and frost, it has seemed impossible for any plants to have flowers, but Nature has provided some pollen producers which can withstand these conditions.

During the latter part of December, on several days, when temperatures, in the shade, rose to the middle and upper 40's, bees were seen bringing in both nectar and pollen. This seemed to indicate that the queens had become "tired of resting" and the colonies were actually raising at least small amounts of brood! It suddenly became chilly so early in the evenings of days on which bees were gathering stores, many doubtless failed to return, and additional bees were needed for the spring "build-up".

Perhaps some beekeepers, like the writer, know little concerning botany. However, many are curious about, and should know the sources from which their bees, at all times, obtain supplies. If pollen sources are limited, artificial pollen may be needed for early brood rearing.

Three specimens of fresh December pollens were obtained with the aid of a special brush, made from a chicken's wing-feather. The vanes of the feather had been trimmed, with scissors, so as to leave short barbs, which were of ideal stiffness to brush pollen from the legs of returning bees, without injuring them. The pollen carriers were picked up at the hive entrances, by their wings, and, after some of their loads had been brushed into a sardine can, they were allowed to enter the hives. The specimens were individually wrapped, marked, and mailed, with a request letter for identification, to United States Department of Agriculture, ERD, Bee Culture Research Branch, Beltsville, Maryland.

A reply from Mr. A. S. Michael stated "specimen 'A' consisted chiefly of dandelion pollen. Specimen 'B' and 'C', on the other hand, consisted of pollen which, altho not positively identified as such, most closely resembles crocus". The writer had already observed dandelion and chickweed in blossom. After the reply came, inquiry was made among some members of the local garden club and they stated that, about the time the pollen specimens were obtained, the following nearby plants were also in flower: purple winter crocus, bush honeysuckle, Oregon holly grape (mahonia) and jasminum nudiflorous. In answer to another letter from me, Mr. Michael stated that the morphology of pollen specimens "B" and "C" did not fit the other plants mentioned above but, although light colored, they possibly came from the purple colored winter crocus.

Brushing pollen from legs of bees.

Since sending these pollens away for expert classification, the idea has occurred to the writer that it might be practical for beekeepers to quickly get, at home, fair ideas of pollen sources. Pollens from flowers found near the apiary can usually be shaken, or feather brushed, onto paper. Their distinguishing features can be studied under a microscope. It will then be possible, under magnification, to compare them with those which the bees will be gathering. Some library references may be helpful. Flower-loving neighbors, largely through curiosity, will usually cooperate and good relations will be cultivated.

A Talk To Beekeepers

M. J. DEYELL

The object of these talks is to help beekeepers succeed.

THIS, IT SEEMS to me is a worthy objective. I am conscious of my limitations in presenting the various phases of beekeeping in a lucid, understandable style, but I'll do my best.

Beekeeping is such a big subject that one hardly knows how or where to start. The technique of manipulating hives may be made intricate and difficult, or, comparatively simple. I prefer the latter. As we go along together during the coming months, I shall endeavor to simplify if possible, the various approaches to successful beekeeping.

Early Recollections of Honeybees

One of my earliest recollections goes back to my grandfather's apiary in Victoria County, Ontario, when I was nine years old, watching my grandfather, from a safe distance, handling the frames and removing filled combs of clover honey to be extracted. I can still see him holding the frame that was practically square, the Jones' frame, I believe it was called. If I am not mistaken, these frames fitted crosswise in an eight frame hive.

That super-delicious alsike clover honey mixed with some basswood can never be forgotten. I can taste it now. I naturally think it was the best honey ever produced. Grandmother used to serve it in green glass dessert dishes. To this day when I wish to really enjoy delicate flavored honey I like to have it served in that kind of a dish, which seems to improve the flavor.

Grandfather's bees were not overly gentle. One Sunday evening a neighbor boy wishing to do something smart, started to dance a jig on top of one of the hives. The bees stung him so badly that he was ashamed to appear in public for a time,—it served him right.

"The Origin of the Art of Beekeeping is Hidden in the Mists of Antiquity"

I read this in a book recently. Beekeeping is one of the oldest branches of agriculture and has an intriguing history. There are a number of interesting books covering the development of beekeeping during the years. Such books are listed in bee supply catalogs and bee journals.

Since so much interest is being focused on honeybees at the present time, due to their importance in pollinating farm crops, it seems likely that more bees will be kept in the future, since the country is not overstocked with honeybees. According to the latest estimate there are 5,401,000 hives of bees in the United States in 1958, an

increase over 1957. The per colony average of surplus honey produced in 1958 is estimated at 46.7 pounds as compared with 44.8 pounds in 1957.

The estimated pounds of honey produced in 1958 is 252,000,134 pounds, while the amount produced in 1957 was 241,000,592 pounds. There are between four and five million pounds of beeswax produced in this country each year.

When one realizes the enormous amount of honey that goes to waste annually for the lack of bees to gather it and the comparatively small number of bees in this country, approximately one hive of bees for each 250 acres, it is easy to speculate what may happen to our industry in the near future.

Bees are Different

All animals on the farm are usually kept within bounds. Honeybees have their hives but they fly over neighbors' fields in search of nectar and pollen. They are free-lances, so to speak.

About 40 years ago when I kept between 200 and 300 hives of bees in northern Michigan in the raspberry region (and by the way, all of the hives were in one yard), the bees found their way to a large acreage of sumac, following the raspberry flow. A certain farmer complained because my bees flew over his fields. Some of them bothered his horses as he cultivated his beans. I couldn't blame him for becoming peeved but of course he didn't realize that the bees were rendering him a service in pollinating some of the farm crops. He told a neighbor that he was going to rig up a large net to trap all of Deyell's bees as they flew over his fields. That would have been a gigantic undertaking. Later on this farmer began to realize how valuable bees were in that locality. I made it a point to become better acquainted with him. One day when I was extracting honey I invited him into my honey house and told him to help himself to the cappings. He told me he wasn't very fond of honey but from the way he kept eating it I knew he didn't dislike it.

Honey is Different

If properly ripened by the bees it will keep practically indefinitely, no cold storage being required. This is more than can be said of some other farm products. Honey is a carbohydrate, an energy producing food, easily assimilated. It is, in fact, nature's oldest and choicest sweet. It was used long before granulated sugar was dreamed of. It is obvious that honey production at the present time is extremely important.

Who Should Keep Bees?

Only those who have a natural aptitude for beekeeping should attempt it. However, it is possible that some who imagine they do not care for bees may find that they do like to handle bees, after they get started.

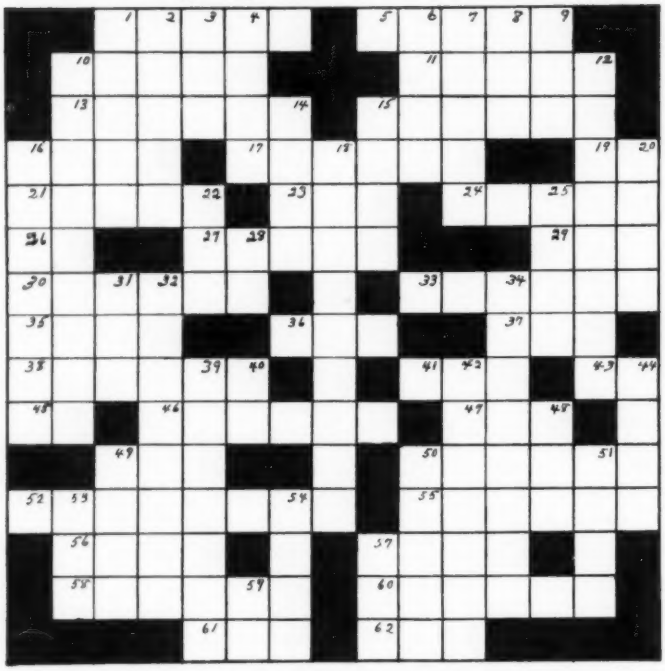
Some beekeepers never grasp the fundamentals of success. These people may keep bees all of their lives but never make good. Others acquire the necessary technique of hive manipulation, also a knowledge of the principles of beekeeping readily and forge ahead rapidly.

People from all walks of life keep bees. Professional men who like to have something on the side as a hobby to take them away from their daily grind, find relief when they go out among the bees. Business men who wish to get away from the trials and tribulations of business life, find recreation among the bees. Teachers frequently take up beekeeping as an avocation and perhaps later on when they wish to give up teaching, make beekeeping a vocation. Frequently beekeeping is undertaken by 4-H Club members. Boys and girls can handle bees successfully if given the right start. There is an advantage in starting young, but some of our best beekeepers started with bees comparatively late in life and have made good.

Some seem to think that all there is to beekeeping is getting some hives of bees, putting on supers, taking off honey and in the spare time during the summer months, sitting under the shade of the old apple tree watching the bees carry in the honey. This very thing can be done at times when conditions are favorable. A beginner may be lucky in doing the right thing at the right time without actually realizing that he is doing the right thing. Beekeeping looks simple but it cannot be done by "rule of thumb". The principles of beekeeping which we shall consider later on, must be thoroughly understood and applied.

(Continued on page 59)

Beekeeping Cross-word Puzzle



Mrs. R. P. SCHLABACH, Medina, O.
Solution will appear in next month's issue.

ACROSS

1. Bees have one, called the wax - - - - -
5. Government apiculturist (retired)
10. Director of American Honey Institute
11. Spanish for priest
13. Trunk artery (plural)
15. First stage of bee (plural)
16. A worn-out horse
17. Re-do the bathroom floor
19. Pound (abbr.)
21. Change, mutation
23. A color
24. Bees do this when they swarm
26. Short for disease of the lungs
27. Short piece of news (plural)
29. Bronze coin of Denmark
30. Formula for preparing food
33. Fragrance (plural)
35. Goddess of the Rainbow
36. Morning moisture
37. Matter or thing (Law term)
38. Shrub yielding certain oil
41. Receptacle
43. Older (abbr.)
45. A state (abbr.)
46. Sphere of action (plural)
47. Form of verb meaning own
49. Specie of Black Bird
50. Benevolent
52. Popular TV singer (2 words)
55. Executed an order
56. Moving spirit
57. Modern Persia
58. Malice
60. Rushed suddenly
61. Sainte (abbr.)
62. White vestment

DOWN

1. Beekeeping authority
2. Big
3. Deed
4. Close
6. Precious stone
7. Household Gods (Roman)
8. Part of speech (abbr.)
9. Abbr. of famous act of 1933
10. Important honey plant of Georgia
12. Submerged marine plant
14. Dry
15. Used on honey jars
16. An Irish Saint
18. Moderate
20. Canadian breeding place for these at Kelley's Island
22. Tear
25. A city of many candles
28. Te - - - -
31. Labor organization (abbr:)
32. Formerly Constantinople
34. Adorn
39. Yellow birds
40. Abbr. for group of states
42. A plant. Stalks used for pies
44. Musical instrument or pipe
48. Speak
49. On high
50. Relating to an hour
51. Poverty
53. An animal
54. There are - - - - Muses
57. A girl's name
59. Conjunction (latin)

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A honey of a recipe from "Honey's Nifty Fifty Recipes" book

Honey Fudge Cake

MONA SCHAFER
Home Economist, California Honey Advisory Board, San Marino 9, Calif.

IT'S RICH and tender with added good flavor, all due to the use of California honey as the sweetener. Even if the family is small, when you are in the mood to bake, do plan to prepare the whole recipe. Honey will keep the second layer fresh for several days. All you do is cool the layer, wrap and store in covered container. The lucky freezer owners can double the recipe and store the cakes away for the fai future.

3 1-oz. squares unsweetened chocolate, melted, ⅓ cup milk, ⅓ cup honey, 1 well-beaten egg, ½ cup shortening, 1¼ teaspoons vanilla extract, 1 cup honey, 2 eggs, 2 cups sifted cake flour, 1 teaspoon baking soda, ½ teaspoon baking powder, ½ teaspoon salt, and ⅔ cup milk.

Combine melted chocolate, ⅓ cup milk, ⅓ cup honey and well-beaten egg in saucepan. Cook over low heat, stirring constantly until thickened. Cool. Cream shortening and vanilla. Add 1 cup honey in a fine stream, creaming until light and fluffy. Add remaining eggs one at a time, beating well after each addition. Sift together flour, baking soda, baking powder, and salt. Combine cooled chocolate with ⅔ cup milk. Add dry ingredients to creamed shortening alternately with chocolate mixture. Beat after each addition until smooth. Bake in two greased paper-lined 9 inch round pans at 350° (moderate) 25 to 30 minutes. Cool 5 minutes before removing from pan.

Double Boiler Frosting

2 egg whites, ¼ teaspoon salt, 1 tablespoon citrus juice or water, ½ cup honey, and ½ teaspoon vanilla extract.

In top part of double boiler, mix egg whites, salt and citrus juice. Whip with beater until egg whites hold their shape. Continue beating while pouring honey in a fine stream. When all is added, cook over boiling water, beating constantly until mixture forms peaks when beater is raised. This takes about five minutes. Remove from heat. Add vanilla and beat until frosting is of spreading consistency. Yield: Frosting for tops and sides of two 9-inch layers.

NEWS and EVENTS

HIGHLIGHTS OF SOUTHERN CONFERENCE PROGRAM

(Reported by Charlotte — Secretary to H. L. Maxwell, Program Chairman, SSBF)

THE TIGHTLY knit program for the Southern Conference, at Hotel Hillsboro, Tampa, Florida, January 26, and 27, is packed with talent and timely subject matter. Everyone is invited to "This Town Hall of Beemen".

The keynote will be "Our 30th Annual Get-to-gether" as told by Past President Hiett. He will define what has brought diverse beemen together for a generation, held their interest, helped them fraternally and materially. Messrs. Willson of New York, Floyd of Minnesota, Stoller of Ohio, and Nightingale of USDA., will give a symposium on honey packing, processing, marketing, and market status. Dr. Anderson of Penn State will report on control of bee diseases by chemotherapy.

Something new has been added in over an hour-long **Beekeepers' "Bull" Session.** Ten or more principals from as many states will engage in a free-for-all on any subject they have on their minds. This can be both instructive and entertaining.

Dr. Farrar, Head of Bee Culture, USDA., will be assisted by engineer Detroy in bringing a brand new subject to our convention — "Report on Research for Improved Bee Equipment and Labor Saving Devices." Every alert beekeeper will want to hear this report.

Charles Mraz of Vermont will bring his forceful account of the mass spraying of millions of acres with insecticides. (Everyone will welcome President Watkins of ABF., and will look forward to attending their sessions).

The Panel on Queen Breeding will cover this important subject exhaustively. Messrs. Cale of Illinois, Weaver of Texas, Bessonet of Louisiana, and Rossman of Georgia are all experts.

Some 23 speakers have been committed to the 5½ hour session. **Door prizes will be awarded at regular intervals throughout the one day session.**

The Banquet will be held on the night of the 27th. The inimitable Mr. Clay will speak a prophetic piece, plus other features; and, this will be the time to relax after a good repast, entertain and be entertained. The Tampa Chamber of Commerce is most cooperative, extends a warm welcome, and everyone can look forward to a rewarding experience and a good time.

SHORT COURSE IN BEEKEEPING AT THE UNIVERSITY OF MINNESOTA

On January 13, 14, 15, and 16, 1959, a short course in beekeeping will be given at the University of Minnesota on the St. Paul Campus. The life story of the bee, the principles of bee management, the value of bees to agriculture, food value of honey, and bee dis-

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Hillsboro Hotel, site of the 1959 American Beekeeping Federation meeting, January 27-30 in Tampa, Fla.

eases will be discussed. A special feature will be evening meetings (7 p.m.) on Wednesday, January 14, when a panel discussion on the problems of management and marketing will be held, and on Thursday, January 16, when research in beekeeping and practical and legal aspects of bee diseases will be discussed. All interested are welcome. There is no charge.

AMERICAN BEEKEEPING FEDERATION — PROGRAM
Jan. 26 through Jan. 31, 1959
Hillsboro Hotel — Tampa, Florida

Monday Jan. 26
8:30 Apiary Inspectors of America (all day)
9:30 A.B.F. Executive Committee (afternoon session if needed)

Tuesday Jan. 27 — Registration all day
9:30 A.B.F. Board of Directors (afternoon session if needed)
9:00 American Committee of the Bee Research Association
1:30 p.m. Directors, National Association of Honey Packers and Dealers

Wednesday Jan. 28 — Registration all day
9:30 Meeting called to order — invocation
Greetings from Tampa and the Florida State Fair. Carl Brorein, President of the Fair
Response — Lawrence Budge, Malad, Idaho — A.B.F. Vice President
10:00 President's Address — S. J. Watkins, Grand Junction, Colorado
10:35 What is SSBF — Harvey York, Jesup, Ga., Pres. of Southern States Beekeeping Fed.
10:45 Beekeeping in the South — W. A. Stephens, Extension Beekeeper North Carolina State College, Raleigh, North Carolina
11:20 Spray Problem Committee Report — H. L. Maxwell, Berryville, Virginia, Chairman of Committee
11:30 Report on Acarine Disease — Speaker from joint Fed.—Apiary Inspectors Committee
11:40 Announcements
1:00 p.m. Movie — Florida State Fair and Gasparilla Day
1:30 A.B.F. Research Committee Program — Clarence Benson, Phoenix, Arizona, Committee Chairman in Charge
"Research in the U.S.D.A. Bee Culture Laboratories" Dr. Clayton Farrar, Head, Bee Culture Section, U.S.D.A.
"Research on Honey and Pollen" — Drs. A. R. Kemmerer and Dr. W. F. McCoughey, Department of Agr. Biochemistry, U. of Ariz. Also Talk "Subject to be Announced" — Jas. I. Hambleton formerly head Bee Culture Station, U.S.D.A.
3:00 General Meeting, National Honey Packers and Dealers Association
4:00 Bee Industries Association
8:00 p.m. "500" Club Program — Henry Piechowski, Red Granite, Wis., Committee Chairman in Charge

Thursday Jan 29 — Registration all day
9:00 Movie — Beekeeping in the Tupelo Area
9:30 The American Honey Institute. What it is, What it does and What it can Do for You. — Mrs. Harriet Grace, Madison, Wisconsin, Director A.H.I.

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Walter D. Leverette Apiaries
P. O. Box 364, Fort Pierce, Fla.

10:00 Panel on Bee Breeding — G. H. Cale, Jr., Hamilton, Illinois, Conductor
Inheritance of Characteristics of Bees—Speaker from Bee Culture Laboratory at L.S.U. at Baton Rouge
Inheritance of Resistance to American Foulbrood — Dr. Walter Rothenbuhler, Iowa State College, Ames, Iowa
Bee Breeding on Pelee Island — Dr. Gordon Townsend, Ontario Agricultural College, Guelph, Ontario
Breeding of Starline and Midnite Hybrids — G. H. Cale
At least 15 minutes for questions from the floor
11:00 "AMS looks at Honey Marketing"—Marvin Webster, Agricultural Marketing Service, U.S.D.A., Washington, D. C.

Thursday Jan. 29

11:35 National Honey Show — Fred Oren, Tampa
12:00 Luncheon, American Bee Breeders' Ass'n.
1:00 p.m. Movie about Florida Citrus — "Sun Goes North"
1:30 A.B.F. Marketing Committee Program — C. D. Floyd, St. Paul Minn. Committee Chairman in Charge—Speakers are to be: John Buss, Hamilton. Ill., C. D. Floyd. St. Paul, Minnesota—"Program of the Marketing Committee," Dr. M. H. Haydak, St. Paul, Minn.—Survey of Roadside Marketing of Honey
8:00 p.m. Honey Queen Sponsors meeting—Henry Piechowski, Red Granite, Wis., Chairman

Friday Jan. 30 Registration

9:00 a.m. Movie "Queen Rearing in Georgia"
9:30 Beekeeping in Mexico — Speaker from that country to be announced
10:00 What about Royal Jelly — George Hohmann, Napa, California
10:30 How the U.S.D.A. Honey Production and Price Reports are Made—Paul Smith, Head, Poultry and Honey Section, Agricultural Estimates Division, U.S.D.A.
11:00 Honey Industry Council Report — Roland Stone, South Gate, Calif., Chairman Honey Industry Council
11:30 Other Committee Reports
1:00 Movie "Fishing Fun in Florida"
1:30 Business Meeting A.B.F.—Election of Officers
7:30 Banquet — Roland Stone, Superior Honey Co., South Gate, California, Toastmaster

Saturday Jan. 31

9:00 a.m. Honey Industry Council
9:30 A.B.F. Board of Directors
(continued in afternoon if necessary)
7:30 p.m. A.B.F. Executive Committee

National Honey Show starts at the Florida State Fair, Tuesday Feb. 3

There are plans for a Hobbyist session on either Tuesday or Wednesday evenings, Jan. 27 or 28, using the nationally known authorities present in a question and answer session.

Mr. Henry Piechowski of Red Granite, Wisconsin, chairman of the Honey Queen Contest, states that there will be a National Honey Queen Contest, and any state desiring to enter a queen in that contest should get in touch with him at once before the meeting for complete information.

The Ladies' Auxilliary will hold a brunch Thursday a.m. Jan. 29. Time and program will be announced at Tampa.

Make your reservations by writing direct to the Hillsboro Hotel, Tampa, Florida.

Following this great beekeeping event, the National Honey Show will run from February 3 through 7, 1959. For more information and entry blanks for the Honey Show, please contact Fred V. Oren, Silver Lake, Tampa, Florida.

KENTUCKY
State Beekeepers' Association
Lexington, Conn.
January 29, 1959

The Kentucky State Beekeepers' Association will participate in the 46th annual Farm and Home Week at the University of Kentucky, Agricultural Extension Service in Lexington. The association will hold a special meeting there on January 29, from 1 to 4 p.m. A cordial invitation is extended to all.

MIDWESTERN
Beekeepers' Association
Kansas City, Missouri
January 11, 1959

The Midwestern Beekeepers' Association will hold its regular monthly meeting on Sunday, January 11, 1959 at 2:30 P.M. at the I.O.O.F. Hall, 812 Westport Road, Kansas City, Missouri. Everybody welcome.—Carroll L. Barrett, Secretary.

OHIO
Beekeepers' Association
Election of Officers

At a meeting of the Ohio State Beekeepers' Association held in Columbus, December 1, the following officers were elected for 1959: President, Don Cook, Milford; Vice President, C. E. Lewis, Akron; and Secretary-Treasurer, H. R. Swisher, P. O. Box 885, Springfield. Barbara Culp, an Ohio student at Florida Central College, was selected to represent Ohio as honey queen at the coming National meeting in Tampa, Florida, January 27-30.

Beekeepers' meetings will be held during Farmer's Week at Michigan State University, Room 103, Kellogg Center, February 4-5. Dr. W. E. Dunham of Ohio State University will be the out of state speaker. A worthwhile program is in store for those who attend. A cordial invitation to all.

(Continued on page 58)

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Macon, Miss.

Asked & An

Cause of Loss in Cellar-wintering

Q. Last winter I lost 20 out of 50 colonies wintered in the cellar. Can you tell me why so many of them die?

A. The usual causes for poor wintering in the cellar, aside from the colonies being in poor condition in the fall as to strength and number of young bees, are, first, a poor quality of winter stores and, second, cellar temperature either too low or too high—usually too low. Either of these defects will bring on poor wintering, and if both are present, cellar-wintering usually results disastrously. Cellar-wintering should never be attempted if the stores are not of the best quality or if the temperature of the cellar cannot be kept uniformly somewhere between 45 and 50°F.

Purpose of Metal Rabbets

Q. What are the tin rabbets for that belong to the brood chamber? It seems that I can get along without them.

A. The tin rabbets are used to prevent the bees from propolizing the projecting ends of the top-bars to the hive, thus making it easier to handle the frames. By holding these projecting ends a bee-space above the shoulder in the end of the hive, the bees can pass under them and so do not propolize them much unless the rabbet becomes filled wth propolis. Some do not use the tin rabbets, but in this case the rabbet in the end of the hive must not be cut so deep. If the rabbets are cut deep enough to allow for the tin, the frames will drop down too deep in the brood chamber, leaving too much space above them.

Bees Use More Stores in Mild Weather

Q. The weather here has been very mild and the bees have been flying every day. Will they consume much more under these conditions than in cold weather?

A. Whenever bees fly freely they consume more stores than if they remain quietly within the hive, and no doubt more stores have been consumed in general during the mild fall and early winter than would have been the case if the weather had been slightly colder. However, the fact that the bees stay within their hives during cold weather does not mean that they are quieter than during mild weather. The bees within the winter cluster are sometimes

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& Answered

more active, and therefore wear themselves out faster and consume more stores during cold weather than they do when they have a frequent flight on account of mild weather.

Angle of Hive

Q. Should the hives stand perfectly level or slant to the front?

A. Hives should slant to the front, so that water will run out of the entrances after a beating rain, but should be level from side to side.

Moving Bees a Short Distance

Q. Could I move a few bee hives on a tin roof at night putting some brush in front of each bee hive?

A. It should be possible for you to move some of your hives of bees a short distance on a tin roof. You should do the moving late in the evening after all of the bees have returned from the fields. If you will put a few sticks or pieces of brush loosely over the hive entrances so that the bees when they leave the hives in the morning, may detect the objects at the hive entrances, they will then know that they are in a new location and will reorient themselves. Be sure, however, that you do not leave any hives, or anything that looks like hives on the old location. Some of the old bees will return to their former location in the morning, but not finding any hives to enter will circle around in the air a few times and eventually return to the new location.

Brood Cell

Q. Is it true that with wax comb foundation having slightly larger cells, it is possible to get larger honeybees, who in turn have longer tongues?

A. It has been shown that the size of the brood cell is a factor in determining the size of the mature worker bee. In fact, larger bees have been obtained through the use of artificial foundation with enlarged cell bases. However, the increase in the size of the bees and in the length of their tongues was too small to make this idea practical. Also, it has not yet been shown that this increase in size has any relation to honey production.

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WANTED—All grades of extracted honey. Send sample and price. DEER CREEK HONEY FARMS, LONDON, OHIO.

CASH FOR BEESWAX. Write as to quantity and we will quote price. MEUNCH-KREUZER CANDLE CO., INC., SYRACUSE, N. Y.

WANTED—White extracted or comb honey. Send sample. MILLERSPORT HONEY CO., MILLERSPORT, OHIO.

BEESWAX WANTED—Highest prices paid in cash or trade for bee supplies. THE A. I. ROOT COMPANY, MEDINA, OHIO; COUNCIL BLUFFS, IOWA; SAN ANTONIO, TEXAS.

WRITE FOR SHIPPING TAGS and quotations on rendered beeswax. We buy from one pound up and if you have over 25 pounds let us work it into foundation for you at a 25 per cent saving. WALTER T. KELLEY CO., CLARKSON, KY.

WANTED — Light amber clover, fall flowers, buckwheat and white clover. Send sample and lowest price. CLOVERDALE HONEY CO., FREDONIA, N. Y.

WANTED—Honey in 60 pound cans, also beeswax any quantity. L. E. ALLEN, TIPTON, MICH.

WANTED—Buckwheat and light amber honey. EASTERN FOOD PRODUCTS, 421 BEDFORD AVE., BROOKLYN, N. Y.

WANTED a few loads of light amber clover honey. EASTERN FOOD PRODUCTS, 421 Bedford AVE., Brooklyn, N. Y.

WANTED, chunk comb and extracted honey. Mail sample and price. STOLLER HONEY FARMS, LATTY, OHIO.

CASH for CARLOADS or less extracted honey. Empty 60's, 15¢, have no room. HONEYMOON PRODUCTS CO., Box 85, RIVER ROUGE, MICH.

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HEALTH forces sale. Central Florida, furnished home. Plenty citrus, 15 bee yards, thousands extra combs, truck, extra equipment, $15,000. Half cash to responsible purchaser. Write TWW care this magazine.

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CARNIOLAN and CAUCASIAN Bees for 1959. Booking queens. Each, $1.00; 2-pound bees with queen, $4.00. 3-pound bees with queen, $5.00. LEWIS & TILLERY BEE CO., RT. 3, BOX 251, GREENVILLE, ALABAMA.

PACKAGE BEES & QUEENS, two and three frame nuclei by truckload, queenless packages and frame brood and bees. G. C. WALKER, Box 894, PHARR, TEXAS.

BRIGHT ITALIANS—3-lb. with queen, $4.90; 2-lb. with queen, $4.25, F.O.B.; queens, $1.25, P.P. SHEPPARD'S APIARIES, ABERDEEN, N. C.

320 colonies bees, disease free, good hives and combs. Cash for bees. Also property on U. S. 17, 3 miles south of Kissimmee, Florida. H. BROWN.

SEEDS

HONEY PLANTS — NEW 1959 CATALOG on request. Try these UNUSUAL NECTAR YIELDERS: Vitex negundo, shrub, 4 plants, $2.50; Bee Bee Tree, 2 plants, $2.50; postpaid. Write for quantity prices smaller size plants. PELLETT GARDENS, Atlantic, Iowa.

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WANTED—Beekeeper for package and queen yards. Give age, height and full information in first letter. HOWARD WEAVER & SONS, NAVASOTA, TEXAS.

WANTED—Strong young man to work in bees for '59 season. FRANK PARMELEE, LEROY, N. Y.

HELP WANTED: For commercial beekeeper, year around job for good experienced satisfactory help. VANDERFORD-HINKLE APIARIES, 701 So. Main, ELLENSBURG, WASH.

HELP WANTED—in large honey business. One top experienced beekeeper, $400 per month. One inexperienced. Give full particulars of your experience. M. E. BALLARD, ROXBURY, N. Y.

THREE YOUNG or middle age bee men, 1 foreman who is well experienced in apiary work on large scale. 1 queen breeder. Good wages. Must be dependable. BUNCH BROTHERS, P. O. Box 544, SUNNYSIDE, WASH.

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BEES REMOVED from house or tree or hive without touching either house or bees. Bees will then move honey into hive. Save property, honey, and bees with my method. Send $2.00 for details. Satisfaction guaranteed. GEORGE HAWKINS, RT. 1, LAWSON, MO.

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BEE WORLD, the international journal of the Bee Research Association published monthly, contains the latest research reports on bees and beekeeping. With Apicultural Abstracts it costs $5.50 per annum, or $6.00 including membership of the Bee Research Association. Apicultural Abstracts only $4.50 per annum from the Hon. Subscription Secretary, Bee Research Association, 10 BARNETT WOOD LANE, ASHTEAD, SURREY, ENGLAND.

AFRICAN BEEKEEPING, successor to the S. A. Bee Journal, monthly, sub. 10/- per annum. THE EDITOR, P.O. Box 4, Bergvliet, C. P., South Africa.

BEE JOURNAL of INDIA, published monthly in English. Subs. Rs. 12/-or Sh. 17/6d (starting) or $2.75 per year per International M.O. Sample copy 2s, or 25 cents. Can be had from: The Bhupen Apiaries (Himalayas), Ramgarh, Dist. Nainital, U. P., India.

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Nice large queens	1.25	1.20	1.05

All queens are personally reared
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HONEY WANTED
Cut Comb and Extracted
Advise what you have
T. W. BURLESON & SON
WAXAHACHIE, TEXAS

NEWS AND EVENTS

(Continued from page 53)

NORTH CAROLINA STATE Beekeepers' Association Burgaw, N. C. February 18, 1959

The North Carolina State Beekeepers' Assocation will hold its annual spring meeting on February 18, 1959, at the Myers Craft Manufacturing Co., Burgaw, N. C., where they are now manufacturing bee supplies. Officers of the association for the coming year will be elected at this meeting and all beekeepers are urged to attend.—S. C. Squires, Sect'y.-Treas.

MIDDLESEX COUNTY (MASS.) Beekeepers' Association Waltham Field Station January 31, 1959

The first meeting this year of the Middlesex County Beekeepers' Association will be held Saturday evening, January 31, 1959, at the Waltham Field Station at 6:30. Each member will bring either a casserole, baked beans, salad or desert. Coffee will be served by the Association. Mr. Roy Paget, President of the Tarrant County Archeological Society of Texas will tell his experiences in commercial beekeeping and queen raising in southern Texas and give an illustrated lecture on an interesting archeological discovery in Texas. In our Honey and Wax Show commemorating our 25th anniversary, first prizes were taken by Al Baptiste, Dick Corrigan, Sam Dixon, Al Jones, Henry Neunzer, and John Proctor.—M. Southwick, Secretary.

IMPORTANT NOTICE

FEDERATION EXECUTIVE SECRETARY POSITION OPEN
Knowledge of Beekeeping and elementary accounting desirable. Send application giving age, experience, and other pertinent data to

S. J. Watkins, Pres., American Beekeeping Federation, Inc.
202 Red Mesa Heights, Grand Junction, Colorado

A TALK TO BEEKEEPERS

(Continued from page 47)

Practically anyone with ordinary ability can secure some surplus honey during a favorable season but it takes an expert to secure a crop of honey during a poor season when conditions are unfavorable.

Where Can Bees be Kept?

Bees have been kept in all sorts of places, roofs of buildings, rooms in dwelling houses with the hive entrances facing outdoors, on back porches, in house apiaries, in back lots quite near to buildings and streets and of course, on farm lots.

A good beekeeping location which means that bees are near nectar and pollen sources, is one of the prime requisites for successful beekeeping. When bees are kept on city or town lots, it is an advantage to have the hives surrounded by buildings, high fences or trees and shrubs, that will force the bees to fly up and over so that they may not come in contact with people or animals nearby. Quite often trouble occurs as a result of neighbors being stung. Some people have a natural dread of bees, mainly because they are not acquainted with them.

Beekeepers should manipulate their hives on a warm day when bees are working so that they are not stirred up unnecessarily.

In future talks we shall discuss how bees should be kept and try to discover the principles that help to guarantee success.

The Bee Industries Association Has Given

OVER $33,000

For Support of the Beekeeping Industry

During the past eight years the members of the Bee Industries Association have given over $33,000 to the American Beekeeping Federation, The American Honey Institute, and other worthwhile projects. Included in this total are direct contributions to these two national organizations as well as a per cent of their supply sales distributed from a special fund. In addition to the actual monetary donation the individual members have also given a great deal of their time and effort.

May we suggest that you support through your patronage the following members of the Bee Industries Association who are supporting your industry:

Dadant & Sons, Inc.
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PACKAGE BEES and QUEENS
"ITALIANS"
Booking Orders Write for Prices
Quality Does Not Cost — It Pays
The Wilbanks Apiaries — Claxton, Georgia

OUR DAILY BREAD

(Continued from page 49)

Honey Bran Muffins

One and ½ cups sifted flour, 1 teaspoon salt, 1½ teaspoons soda, 2½ cups bran, ½ cup raisins, dates, or prunes, chopped, 2 eggs, ½ cup honey, 1¼ cups sour milk or buttermilk and 2½ tablespoons melted shortening.

Sift flour, salt and soda together; add bran and fruit. Beat eggs; add honey, sour or buttermilk and shortening. Add to dry ingredients all at once and stir only enough to dampen all the flour. Fill greased muffin pans ⅔ full and bake in hot oven, 400° F., about 25 minutes. Yield: 1½ dozen.

Twice-Baked Honey Rolls

Two cups milk, 5 teaspoons salt, ¼ cup honey, 2 yeast cakes, softened in 1 cup lukewarm water, 10 cups sifted flour and ½ cup melted shortening.

Scald milk; add salt and honey. Cool to lukewarm. Add yeast; stir until smooth. Stir in six cups flour and the cooled shortening. Add additional flour, sufficient to permit kneading. Knead, let rise until double in bulk. Then shape into rolls, any desired shape. Let rise until slightly less then doubled in bulk. Bake 40 minutes in a very slow oven, 275° F. Leave in pans 20 minutes. Cool at room temperature and wrap. Yield: 8 dozen rolls.

When ready to serve, place on ungreased pan or cooky sheet. Bake until brown, about 10 minutes.

You Can't Take It With You!

Why not make a contribution to our industry by sharing your beekeeping experiences and methods with others. Gleanings is an excellent media for disseminating useful beekeeping information. Send us your articles and **pictures.** We pay for acceptable material when published.

Pure Queen Bee ROYAL JELLY, $16 per ounce, $200 per pound, with directions on how to mix and take it with honey. We deliver by return AIR MAIL.

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Package Bees and Queens
We ship pure worker bees by mail, express, or truck—with queens introduced or not whichever you like. We guarantee live arrival.
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Each with a Young Laying Queen

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12 to 29, Each	4.05	5.10	6.15	7.20
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Prices	extra queens	2-lb. pkg. w/q	3-lb. pkg. w/q
1 to 11	$ 1.40	$ 4.50	$ 5.50
12 to 49	1.30	4.25	5.25
50 to 199	1.25	4.00	5.00
200 and up	1.25	3.75	4.75

If you wish queens clipped or painted add 5c each.
Quality and Service. Book Now.

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Packages with Caucasian Queens

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Extra Caucasian Queens	1.45	1.35	1.25

For Dadant's Midnite Hybrid Type Caucasian Queens, add 30¢ to each queen or package.
Queens clipped and marked. 10¢ each additional.

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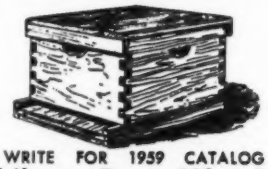

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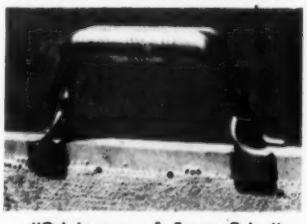

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100-up	1.15	3.75	4.75

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